

ARMED FORCES management



PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS



*New Obligational Authority, Direct Obligations and Expenditures
Fiscal Years 1959-1961*

(Millions of Dollars)

By Function	New Obligations		Direct Obligations			Expenditures	
	FY 1959	FY 1960	FY 1959	FY 1960	FY 1961	FY 1959	FY 1960
Military Personnel	11,998	929	12,008	12,187	11,801	11,959	12,146
Active Forces	10,709	69	10,621	10,776	10,544	10,592	10,741
Reserve Forces	649	5	679	612	616	667	611
Retired Pay	640		708	799	641	700	794
Operation and Maintenance	10,195		10,300	10,527	10,384	10,137	10,321
Procurement	14,293		13,605	14,364	14,410	13,943	13,602
Aircraft	6,134		5,940	6,013	7,658	6,670	6,027
Missiles	4,107		3,540	3,805	3,339	3,500	3,479
Ships	1,947		1,500	1,740	1,493	1,651	1,644
Other	2,105		2,624	2,806	1,921	2,121	2,451
Research, Development, Test, and Evaluation	3,775		4,268	3,952	2,859	3,680	3,917
Military Construction	1,384		1,497	1,382	1,948	1,670	1,359
Active Forces	1,358		1,428	1,332	1,862	1,608	1,302
Reserve Forces	26		69	50	86	62	57
Revolving and Management Funds	57		—	—	—169	—444	—350
Sub-total	41,703		41,679	42,412	41,233	40,945	40,995
Available by transfer of prior year balances	—535		—	—	—	—	—
Total, Military Functions	41,168		41,679	42,412	41,233	40,945	40,995
Military Assistance	1,515		1,748	1,797	2,340	1,800	1,750
Grand total, DoD-Military (Military Functions & Military Assistance)	42,683		44,209	43,573	42,745	42,745	42,745

NOTE: Data are adjusted to reflect comparability.
* New obligational availability, including

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New Oblig

By Service

Department of the Army	349	9,383
Department of the Navy	71	11,683
Department of the Air Force	2	18,614
Office of the Secretary		1,315
Sub-total		40,995
Available:		
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Secretary Gates and the Budget

New Faces, Old Problems. p. 13



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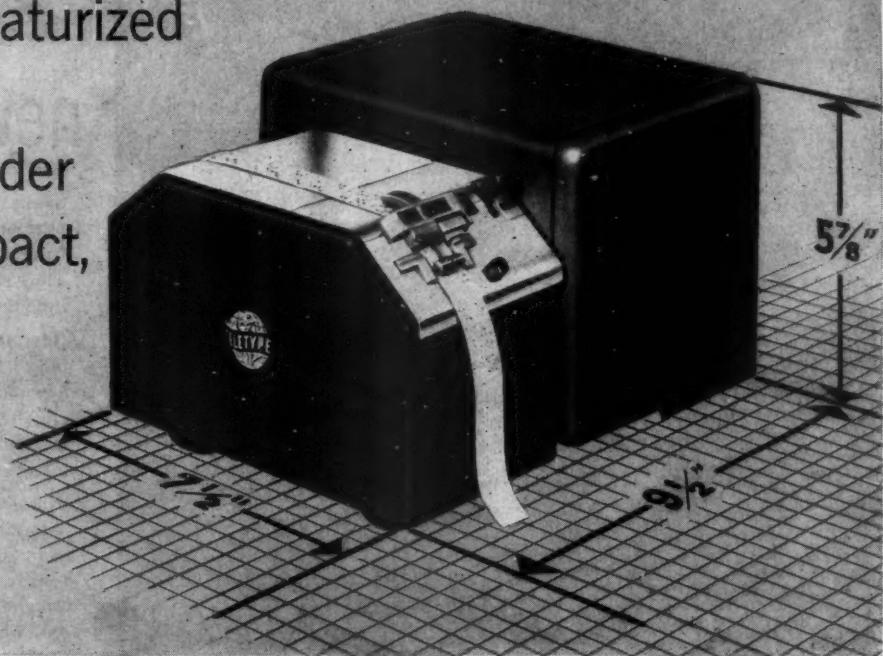
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Tape Reader
has compact,
space-
saving
design



Here is a new tape reader set from Teletype Corporation—the Model 28 miniaturized LXD. It features a 40% reduction in size and weight. This new space-saver set is completely compatible with other Teletype communications equipment. It features facilities for sequential (serial) transmission, with optional contacts available for multi-wire output, and it is designed to read either

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The Model 28 miniaturized LXD tape reader is made, as is all Teletype equipment, for round-the-clock, day-in, day-out service with minimum maintenance. The unit is equipped with an all-metal clutch that requires lubrication only once or twice a year, and operates with precision accuracy for continuous or intermittent transmission.

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Motor:	Synchronous, 115 V., 60 Cy.
Finishes:	Gray-green or custom

FEBRUARY 1960



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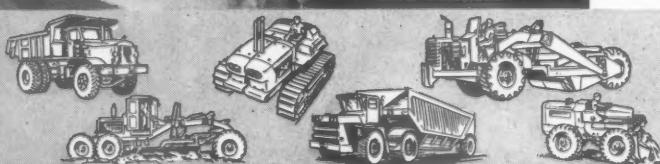
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ARMED FORCES management

PUBLISHED FOR THE ARMY, NAVY, AIR FORCE, COAST GUARD AND MARINE CORPS

FEBRUARY, 1960

Volume 6—No. 5

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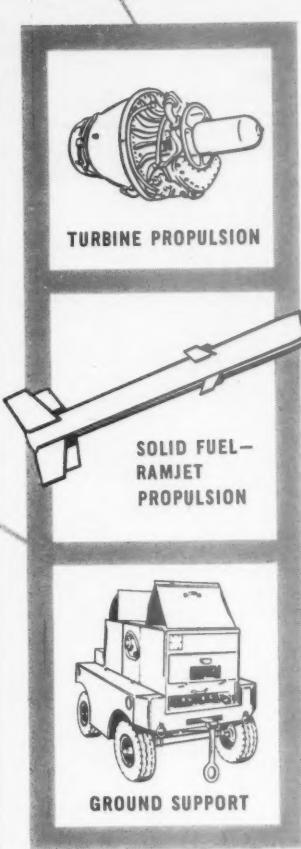
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FEBRUAR

Not Problems but Progress

UNTIL Defense Secretary Thomas Sovereign Gates had the audacity early last month, to suggest that we might just have a chance of winning a war if we started fighting tomorrow, Washington in January, was becoming, almost by tradition, the stage for a sort of "Wanda at the Wailing Wall."

Viewing with alarm, supporting "with reservations," black predictions of impending disaster, the anguished cry in the night were stock items in the repertoire of nearly every speech maker and congressional witness in the Washington arena.

Like a fresh breeze on a hot summer day, Gates strode onto Capitol Hill in mid-January, used as his general theme "I think it is important that the American people realize the fact of what our capabilities are" rather than what they are not, and pointed with persistent concentration to the positive 95% of the defense effort.

He was backed up by Joint Chiefs Chairman Nathan Twining who said, "We have great strength, we are a powerful country, and I do not think we should downgrade our capabilities as a nation to the Russians. That is what gives me great cause for concern -this downgrade of our capability. It looks like we are going to get licked every day."

The refreshing thing about the Gates-Twining pitch is its accent on the positive in strong but commonly understandable language—rather than the platitudinous folderol which unfortunately has characterized, in the past few years, too much of the Administration's attempt to sell itself and its programs to the public. More important, it is the first dynamic attempt by any top public official to puncture holes in a Communist propaganda bubble described as far back as mid-1958 by Brig. General Austin W. Betts, now director of the Advanced Research Projects Agency, when he said:

"I . . . believe that the Communists have been carefully studying all phases of U.S. technological effort for some time in order to select certain areas for demonstrations where they might clearly excell us. Remember this—the Communists are dedicated to world conquest—and a conquest by ideas is a lot more lasting than one imposed by the sword."

"Look at their outstanding technical achievements in the recent past—their 30-billion electron volt accelerator, their TU-104 jet airliner, and their Sputniks. These were achievements carefully calculated to attain international acclaim for the excellence of their scientific capabilities. And they were all in areas of technology where the Communists knew full well from our open literature that we were not in a race."

"Moreover, they were in areas selected to be particularly impressive to the unsophisticated."

"This brings me to the point I want to make. We, as a nation, seem to hit the panic button about our immediate military posture simply because the Russians have demonstrated a certain rocket capability."

Of course, they have proved what we strongly suspected—that they can make an ICBM that will pose for us a military threat. But does this really change today's situation from what it was before?"

Congressmen have generated this "hysteria in high places" primarily because it makes for good publicity—and this is one sure-fire way to gather up votes. Service officials have unwittingly encouraged the same feeling of gloom because pointing out deficiencies tends to get them more money to carry out their responsibilities.

(There is nothing wrong, particularly, in responsible individuals trying to acquire more financial backing than the Administration allots them. There are plenty of defense programs now awaiting which, strictly on their technical merits, are worth doing. But trying to do them all, or even a major part of them, is a financial impossibility not only for this Nation but for the Free World. Unfortunately, the American public, or most of it anyway, has always viewed these bitter complaints over cancelled programs as finite rather than relative parts of a bigger picture.)

Thus, to borrow from *New York Times* military analyst Hansen Baldwin, a public image of relative American weakness has been created—"partly by Communist propaganda, partly by undoubtedly Communist achievements, partly by the special pleading of the individual Services, partly by opposition criticism, partly by inept Administration presentations of our strength," and partly because a glob of slung mud always makes better front page headlines than the biography of a civic philanthropist.

Not that the Pentagon doesn't have plenty of problems from the simplest managerial weaknesses of its own employees (there are still far too many people in the Military who apparently are under some compulsion to write their inter-office memos in such ridiculous phraseology as "our latitude of correction is up" rather than "we must improve") to the frequently irresponsible, moronic impositions placed on defense by the national political, economic and social fabric into which it is woven. There is still an awesomely long way to go to perfection.

But what is considerably vexing to many Pentagon officials is that the progressive leaps in improved operations are pretty well ignored by influential doom criers, practically all of them amateurs in the business, who much prefer to talk about "gaps."

It is a pleasant surprise therefore, emotionally at least, to see a handful of positive thinkers jerk the initiative (in the public relations side of this business) away from the roaring stadium full of insensate, Monday morning quarterbacks which Nate Twining described as "an element in the country that thinks 'gentlemen, better be Red than dead.'"

Bill Borklund

**SURVIVAL
DEPENDS ON
VERSATILITY**



The story of evolution is the story of success, or failure, in versatility. Those animals that could adapt themselves to changing conditions of life multiplied, flourished and survived. Those that were too set in their ways died out. It is not only in Natural History that versatility – the ability to perform more than one function – is of critical importance. It is equally important in the field of defence against air attack. If we ever again have to defend ourselves against attack from the air, the one certain thing is that the pattern of attack would be chosen so as to make things as difficult as possible for the defence. The less flexible our methods of defence, the more easily they could be baffled.

VERSATILITY IN DEPLOYMENT

A vital weapon for defence against air attack is the guided missile. Missile systems can either be permanently sited on fixed concrete emplacements, or, like the English Electric Thunderbird, be made fully mobile, moved across country in standard military vehicles, and redeployed in a few hours. The important thing is that the second category – and this means Thunderbird – can also be used in a static role. It can stay put on a chosen site for as long as that site continues to be the most suitable one. It doesn't have to be concreted in; and this saves money and man hours. But if the unexpected happens – and in war it always does – Thunderbird can be away and in action again to meet a new threat overnight. It is operationally flexible. Now in service with the Army, its inherent mobility allows for quick changes in plan, easy resiting of defence and provides the versatility which is of ever increasing importance to present and future air defence.

EVOLUTION CONTINUES
An even more advanced version has been under development for some time and is well under way. Amongst other improvements, Thunderbird's successor will provide longer range and increased low-level capability whilst still retaining its full mobility and air-transportability. Evolution, in fact, is still going on – an evolution which, as in nature, will still further increase the versatility of the Thunderbird Weapon system, upon which our survival may depend.



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GW 3

Washington Background



PENTAGON WORK PACE HAS JUMPED terrifically since Congress returned to town in early January. Heat of inquiry, as predicted, is particularly intense because of legislative hunt for headlines to help garner votes.

SENATE HEARINGS ON OUR DEFENSE POSTURE, however, will probably end by mid-February. They are more anxious to discuss civil rights. But the House, said one officer, "will be after us right up to 4 November." Senate committee to be heard from most, probably: Preparedness—with two Presidential aspirants on its rolls, Johnson and Symington.

REGARDLESS OF HOW LONG THEY ARE ON THE GRIDDLE, Defense leaders are in for a rough time, a good deal of what will appear to be balancing-on-the-fence. Ignoring politics for the moment, chief among the philosophical reasons, say observers, has been a public tendency to lump space research and military missile capability in the same package, howl that we are running second.

THE SAME "LUMPING" TENDENCY has resulted in equating "missile gap" and "deterrent gap" even though the facts belying these erroneous equations have been around for some time—if you wanted to dig hard enough to find them. Conscientious Defense officials will probably spend a great deal of time in the next few months pointing out, in public utterances, the differences between these "lumps."

PUBLIC EDUCATION EFFORT WILL BE CLOUDED, though, because of separate Service privilege of publicly disagreeing with the "how-much-of-what" compromises in the budget, plus the fact that best chance of getting more money is to point out weaknesses. These nuances are lost, largely, on an American public looking for finite answers to elusive problems.

HEBERT SUBCOMMITTEE'S REPORT ON OFFICER HIRING by industry is out, appears to recommend little (standardizing all Services on the two-year cooling off period) which Defense hadn't already requested at least a year ago. Only possible hooker precluding military and ex-military people from behaving as they always have is definition of "selling"—and its interpretation—which may be written into the proposed legislation.

NAVY'S ANTI-SUBMARINE WARFARE EFFORT continues to stumble and stagger. Recently formed ASW committee, presumably to answer industry complaints about way the effort was being managed, reportedly has been largely ineffectual.

EVEN WORSE, BIGGEST ROADBLOCK—lack of funds—becomes an even greater obstacle in the '61 budget. "The important part of the antisubmarine effort is really in improved research," to quote Defense Secretary Gates. Yet, ASW R&D funding request is actually down \$45 million (to \$180.5 million) this year compared to last.

NAVY PROPAGANDISTS QUICKLY ARGUE that ASW portion of the budget, as they define it, is up from \$1.276 billion in 1960 to \$1.371 in '61. But observers say it's a cinch some sharp Congressman is going to want to know (1) why most of it is for already developed ships, aircraft, ordnance, etc., which sea tests have indicated to be clearly inadequate; (2) why the R&D funds drop if Navy says they are so important; (3) if this popular ASW heading isn't being used as a cover for ship modernization and the like whose connection with ASW is highly questionable?

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Washington Background

PREPAREDNESS DEBATE BEGINS

An inevitable result of not enough money to go around, the perennial debate on how the \$40.9 billion defense budget should be spent is going hot and heavy.

As has been true in the past, this year's argument will surround the missile gap, money to be spent on manned aircraft, and modernization funds for all services.

In a Presidential press conference, President Eisenhower assured Washington correspondents that he had no fears regarding the military position of this country. Eisenhower said he felt he could negotiate with the Russians in any summit conference from a position of strength, and that he felt he knew "more about this than almost anybody, I think, that is in the country."

On the other hand, Air Force Chief of Staff General Thomas D. White has announced that he will come out against Administration decisions to cut back the B-70 chemical bomber program. Recent stretch-outs have in effect killed the B-70 as a weapons system, leaving only enough money for a research craft.

From the Army side Gen. Laurence S. Kuter, North American Air Defense Commander, has asked that the Pentagon pour more funds into the Nike-Zeus anti-missile missile program. President Eisenhower has said that developments on the Zeus program do not warrant heavy expenditures so far.

As if in anticipation of these and other criticisms, the Administration has requested the Pentagon prepare a report which would answer criticisms about the so-called missile gap. At the same time, heavy emphasis was placed on missile and space funds in the fiscal 1961 budget, in some instances as opposed to manned aircraft.

HEBERT REPORTS ON RETIREES

The Hebert House Armed Services Investigation Subcommittee has released its long awaited report on retired officers "peddling influence" to former service associates.

Basic Hebert recommendation is to prohibit all officers or civilians leaving the Defense Department from selling anything to the Pentagon for two years after their departure. The Panel presented a definition of "selling" from which it said there will be no escape.

However, the Hebert committee found no evidence of wrong-doing by any of the 762 former military officers employed by the nation's 100 largest contractors. Officers involved ranked no lower than Colonel in Army or Air Force or Captain in the Navy.

Also last month, Air Force revised its conflict of interest rules involving retired officers or former civilian personnel.

The Air Force regulation states: "No retired Air Force officer will sell, contract for sale of or negotiate for sale of anything to the AF. This prohibition extends beyond the mere bargaining which may precede the execution or the modification of the contract. It includes any activity in a representative capacity on behalf of the prospective contractor which is directed toward forming the basis of a contract with the government."

AF TO SCREEN RESERVISTS

Air Force this year will begin an annual process of screening reserve officers eligible for retirement to determine those who will be retained on active duty after twenty years.

First Selection Board for this purpose will convene in the Pentagon in March. Aim is to insure proper balance of needed skills and training in the Air Force.

Over 5,000 Reserve officers on active duty will be

eligible to retire during fiscal 1961. It is expected that about 1,000 will retire voluntarily and 1,700 will be retired between Sept. 30, 1960 and February, 1961 as a result of the new program.

Officers selected for retention under the program will not be re-screened for three years under present plans.

CONGRESS PROBES PAYROLL

Little noted in all the headlines about Congressional promises of investigating this and that in Defense operations has been one promised inquiry which could well affect every military man on a personal basis—in the pocketbook.

Promised inquiry, coupled with planned introduction of legislation on both sides of the House, concerns the present versus a proposed method for meeting the military monthly payroll. The new idea was outlined, in essence, in this magazine in February, 1958. Both before and after the appearance of the article, the idea itself has bucked, according to its advocates, an appalling amount of parochial mismanagement, cursory investigation, and manufactured objections.

Primarily because of the continued push, in spite of obstacles, by the idea's advocates (primarily John L. Baber, Jr.), key figures in Congress are beginning to assemble the whole story, have promised early hearings and probable proposed legislation to instigate the new technique.

The "new" plan reportedly can save the government at least \$500 million dollars a year, a large number of equipment expenditures, and make fraud (which currently involves a sizeable sum in the Defense Department alone) virtually impossible.

In essence, to quote Baber, the idea has been proposed as far back as 1947, goes something like this:

"With minor exceptions, all salaries, military pay, annuities, veterans and social security benefits, compensations, emergency and unemployment relief, also vendors and suppliers invoices, would be paid in each community by members of the deposit-insured banking system, or equivalent agencies where needed." In other words, the government, instead of issuing millions of checks each month, would replace salary checks with a system of directly crediting employees' bank accounts.

Every employee who now gets paid by check would provide the Treasury or his disbursing officer with the name of his bank. When pay day came, the bank would receive a lump-sum check equal to the combined salaries of its Government worker depositors. Then the bank, in turn, would credit the proper amount to the account of each employee.

Proponents of the plan claim that once installed the proposed system will provide continuity and automatic performance of the paying functions and a measure of protection against fraud not attainable under the present system. It would reduce the manpower requirement needed to make the present system work and eliminate "mountains of unnecessary paperwork." (The Army world-wide for all purposes, issues some 2,300,000 checks a month. The Air Force, if it only paid civilian and military personnel once a month, needs nearly one and one quarter million checks.)

All three services would be using the same payroll and accounting methods.

The proposed system can be installed and operated without disturbing the continuity of payment, without creating any new Government agency, and without the addition of a single employee."

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At K. I. Sawyer Air Force Base, Marquette, Michigan, a Caterpillar D375 Electric Set supplies standby power for runway lighting. The set is equipped with automatic start-stop controls which enable it to pick up a full load in 4 to 8 seconds average.

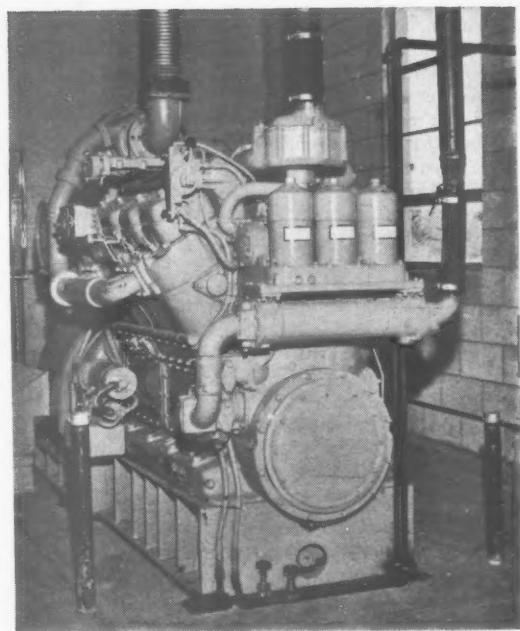
At Truax Air Force Base and Municipal Airport, Madison, Wisconsin, a Caterpillar D337 Series F Electric Set supplies emergency power for runway lighting and a CAA control tower. Landing beam lighting for controlled landings is also being installed on standby.

Caterpillar Electric Sets supply any quantity of dependable power from 30 to 375 KW. They are extremely efficient 4-cycle engines which operate on safe diesel fuels, ranging from JP-4 to No. 2 furnace oil. They start easily, pick up load quickly and can be operated and maintained by unskilled personnel. Parts and service are available throughout the Free World.

Special high-strength materials, strong reinforcing, simple compact design give Cat Electric Sets the stamina to operate for extended periods without letup. At Air Force Bases in the Atlantic, Cat Electric Sets have run over 20,000 hours without an overhaul, while supplying 68,000 kwh per month.

These are just a few reasons why Caterpillar Electric Sets are in service at so many military and civilian airports. Uses include primary and standby power for testing, starting engines, alert hangars, radar systems, lighting, heating, living and operating facilities.

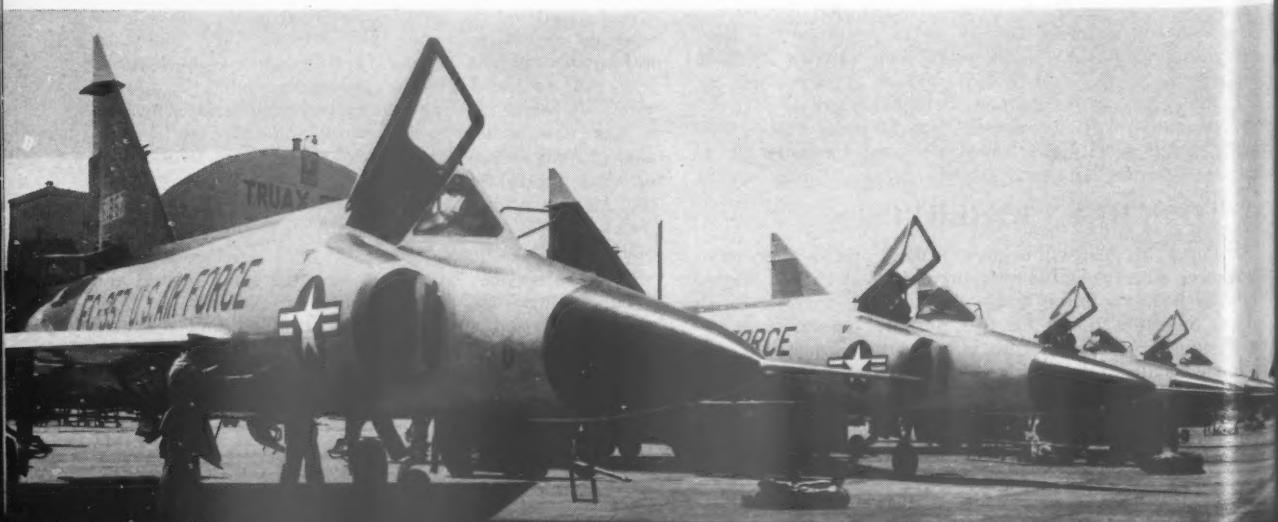
Get the complete story on the advantages of Caterpillar Electric Sets. Write for our new booklet, "Guide Book on Emergency Power."



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Engine Division, Caterpillar Tractor Co., Peoria, Ill., U.S.A.

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The FY 1961 Budget

NEW FACES, OLD PROBLEMS

No dollar-surprises and a good deal of pertinent military observation about "gaps"—or the lack of them—has characterized this year's budget presentation to Congress. Setting the boundaries for it all: President Eisenhower's insistence on hold-the-line economy in government spending. . . .

by Bill Borklund

IN HIS opening statement before the House Subcommittee on Defense Appropriations, Defense Secretary Thomas S. Gates said, "The strength of our economy is important to our military strength."

In essence, he was merely repeating a theme voiced several months earlier by President Eisenhower, underscoring an order from the White House which made the FY 1961 Defense Budget outcome predictable as far back as November of last year. It has been no secret either that the size of the pocketbook would determine this year if not the military programs at least their size and scope.

Thus, House Congressional attention turned almost without hesitation to the question of what rating the pocketbook as number one was doing to the strength or weakness of our defense posture. More to the point, what

would Gates have to say about our strength and weaknesses in National Defense in his first Capitol Hill observations as the Pentagon's president and chairman of the board.

Gates' thirty-three page opening statement to the House Subcommittee (which he rewrote three times even before it had been fully staffed among the Services) was cautiously confident of defense ability, under the requested funding, to carry out the job that might be required of it in the next year and a half.

To Congressmen, many of whom have talked as well as listened for several years to cries of impending disaster, however, the confidence in the document stood out, prompted subcommittee chairman George H. Mahon to say, "in my long period of service on the committee, this is the most enthusiastic and rosy and reassur-

ing presentation that we have ever had."

For military men interested in how the front office looks at the job, Gates' document went even further. Its very obvious comprehension of the Defense Department environment has already earned it a "must read" label from many. Even more encouraging to the conscientious legislators: the statement was a clear sign of Gates' competence to perform his new job, a job he accepted in the first place only with great reluctance. Among his more pertinent observations:

The Budget—"The Defense program and budget cannot be formulated in isolation. It must be dealt with in the context of the entire national policy. (Some of the major factors considered in developing a budget were) first, the threat to our national security . . . is not only military. It is also political,

New Obligational Authority, Direct Obligations and Expenditures Fiscal Years 1959-1961

(Millions of Dollars)

By Service	New Obligational Authority			Direct Obligations			Expenditures		
	FY 1959	FY 1960	FY 1961	FY 1959	FY 1960	FY 1961	FY 1959	FY 1960	FY 1961
Department of the Army	9,756	9,960	9,806	9,555	9,966	10,008	9,468	9,349	9,383
Department of the Navy	11,980	11,313	12,073	12,147	11,677	12,139	11,728	11,571	11,683
Department of the Air Force	18,970	18,525	17,767	19,599	18,854	18,994	19,232	18,932	18,614
Office of the Secretary of Defense	998	1,279	1,281	851	1,182	1,271	805	1,093	1,315
Sub-total	41,703	41,077	40,927	42,151	41,679	42,412	41,233	40,945	40,995
Available by transfer of prior year balances	-535	-430	-350						
Army	-375	-281	-240						
Navy	-160	-99	-60						
Air Force		-50	-30						
Total, Military Functions	41,168	40,647	40,577	42,151	41,679	42,412	41,233	40,945	40,995
Military Assistance	1,515	1,300	2,000	2,012	1,748	1,797	2,340	1,900	1,750
G and total, DoD-Military (Military Functions and Military Assistance)	42,683	41,947	42,577	44,163	43,427	44,209	43,573	42,745	42,745

NOTE: includes estimates proposed for later transmission as follows: FY 1960, \$25 million for "Military Personnel, Air Force;" FY 1961, \$24 million for "Retired Pay, DoD."

How much is enough . . .

Expenditures for Procurement & RDT&E by Service

(Adjusted for Comparability with FY 1961 Appropriation Structure)
(Millions of Dollars)

	FY 1959	FY 1960	FY 1961
PROCUREMENT			
Army—Total	1,388	1,251	1,198
Aircraft	113	108	132
Missiles	725	472	413
Ships	2	3	4
Other	546	649	650
Navy—Total	4,464	4,322	4,355
Aircraft	2,152	1,683	1,663
Missiles	319	389	397
Ships	1,488	1,647	1,640
Other	506	602	654
Air Force—Total	8,554	8,369	8,049
Aircraft	5,393	4,879	4,232
Missiles	2,295	2,639	2,669
Ships	—	—	—
Other	867	850	1,147
RESEARCH, DEVELOPMENT, TEST AND EVALUATION			
Army	800	1,016	1,003
Navy	900	1,131	1,266
Air Force	1,081	1,270	1,261
OSD	78	263	387

economic and psychological. To cope successfully with this total threat the United States must have a total strategy within which all the elements are closely coordinated and most important are in proper balance.

Second, we cannot assume at this time that negotiations with the Soviets will result in agreements that will ease our defense problems. There is nothing to justify (such) a belief.

Third, we have adopted the principle of collective security as a basic tenant of our foreign policy. We no

longer think in terms of our national defense alone but rather in terms of the total defense capabilities of the Free World.

Military Capability—"our retaliatory forces are capable of carrying out their assigned missions. Manned bombers are still, for both ourselves and the USSR, the primary means of delivering heavy nuclear weapons in the volume and with the accuracy needed to strike a decisive blow. In this category the United States far excels the USSR.

"The two principle objectives of our defense program continue to be: first, to deter the outbreak of general war by maintaining and improving our present capability to retaliate with devastating effectiveness in case of major attack upon us or our allies; and second to maintain together with our allies a capability to apply to local situations the degree of force necessary to deter local wars, or to win or contain them promptly if they do break out.

"I have no doubt that today our defense forces can accomplish these major purposes."

The Deterrent Gap—"is the conclusion of those who have analyzed this matter that even a surprise attack by all the missiles the Soviets could muster would not suffice to destroy enough our retaliatory strike forces to enable him to make a rational decision to attack. This conclusion is based on the knowledge that our over-all deterrent posture depends not only on our long range missile capability, but also upon the continued success of other strategic weapons development programs, including those for mobile systems; upon the continued evolution and refinement of our capability to mount a sustained air alert on short notice; upon our ability to bring advanced early warning systems into operation; and upon our continued vigilance in detecting and reacting to improvements or changes in the Soviet posture, intentions, and weapon developments."

"Just matching our competitor, missile for missile, is not the answer. The simple piling up of a single weapon without regard to their ability to sur-

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Budget

New Obligational Authority, Direct Obligations and Expenditures Fiscal Years 1959-1961

(Millions of Dollars)

	New Obligational Authority			Direct Obligations			Expenditures		
	FY 1959	FY 1960	FY 1961	FY 1959	FY 1960	FY 1961	FY 1959	FY 1960	FY 1961
By Function									
Military Personnel	11,998	12,088	12,187	11,929	12,008	12,187	11,801	11,959	12,146
Active Forces	10,709	10,692	10,776	10,669	10,621	10,776	10,544	10,592	10,741
Reserve Forces	649	681	612	625	679	612	616	667	611
Retired Pay	640	715	799	635	708	799	641	700	794
Operation and Maintenance	10,195	10,317	10,527	10,132	10,300	10,527	10,384	10,137	10,321
Procurement	14,293	13,090	13,085	14,800	13,605	14,364	14,410	13,943	13,602
Aircraft	6,134	6,143	4,753	7,004	5,940	6,013	7,658	6,670	6,027
Missiles	4,107	3,244	3,825	3,702	3,540	3,805	3,339	3,500	3,477
Ships	1,947	1,139	2,035	1,846	1,500	1,740	1,493	1,651	1,544
Other	2,105	2,563	2,471	2,248	2,624	2,806	1,921	2,121	2,451
Research, Development, Test, and Evaluation	3,775	4,189	3,910	3,544	4,268	3,952	2,859	3,680	3,917
Military Construction	1,384	1,364	1,188	1,748	1,497	1,382	1,948	1,670	1,387
Active Forces	1,358	1,291	1,153	1,687	1,428	1,332	1,862	1,608	1,302
Reserve Forces	26	73	35	61	69	50	86	62	57
Revolving and Management Funds	57	30	30	—	—	—	-169	-444	-350
Sub-total	41,703	41,077	40,927	42,151	41,679	42,412	41,233	40,945	40,995
Available by transfer of prior year balances	-535	-430	-350	—	—	—	—	—	—
Total, Military Functions	41,168	40,647	40,577	42,151	41,679	42,412	41,233	40,945	40,995
Military Assistance	1,515	1,300	2,000	2,012	1,748	1,797	2,340	1,800	1,758
Grand total, DoD-Military (Military Functions & Military Assistance)	42,683	41,947	42,577	44,163	43,427	44,209	43,573	42,745	42,756

NOTE: Data are adjusted to reflect comparability with FY 1961 appropriation structure.
* / New obligational availability, including transfers of prior year balances.

of our first, and war with our security; and with our local necessary or con- break our de- major conclu- this tick by could destroy forces to decision based on our deter- but also other critical pro- file sys- solution lity to in short- ing ad- into op- vided vided to im- Soviet on de- or, mis- er. The weapon to sur-

vive a surprise attack or perform effectively under a wide range of conditions, would not only be enormously costly but would not assure our security. Each weapon system has its own particular characteristics, its own strengths and weaknesses both with respect to its vulnerability and effectiveness. The solution lies in a whole complex of related measures each of which in various degrees contributes to the establishment and maintenance of an assured retaliatory capability.

"The point is: variety in weapons systems, in itself, reduces the vulnerability of our retaliatory forces and adds to their offensive potential by vastly complicating the enemy problem—both in attacking our forces on their bases and defending against our retaliatory forces as they launch their counter attack."

As to the development of the budget itself this year, there were one or two new wrinkles. For the first time, military assistance was included in the defense budget. In the past, it has been a part of the foreign aid appropriation request. As far as agreeing on the figures themselves, for the first time this year, to quote one comptroller official, "everybody saw everybody else's business; all the key people saw the whole picture and agreed to it before the final printing."

Naturally, as in the past, there are disagreements along service mission lines as to the adequacy of the funding. But probably the most surprising thing about this year's budget is that the furor over "inadequate amounts" has been a good deal less than that which occurred last year—even though all the factors which prompted last

year's furor are still around. In fact, logically they should be even more critical.

Clue to why came from Joint Chiefs of Staff Chairman Gen. Nathan Twinning when he told the House Subcommittee, "We are in a position now . . . where we can annihilate each other. The only way we can deal with this fellow is not to tell him how deficient we are today; we are prone to do this at times because it gets us more money. My point is, let us not downgrade our capability at a time when we are entering upon negotiations which may lead to peace and disarmament. We want to deal from strength."

For the Future

As to the adequacy of the defense budget, a question which is rattling around in the heads of a good many people and one upon which the politicians may try hard to make some mileage, the following exchange between Gates and Mahon pretty well covers Defense's official viewpoint:

Mahon. With respect to the adequacy of our defense—and we seem to feel that we stand on solid ground now—the budget in the last few years in new appropriations and in spending have been approximately at an even level. We all know that defense costs are going up. We have inflation and cost are going up, so you are going to buy less defense next year than you bought last year, than you are buying this year, unless you are able to do a better job of the management of those dollars. This leads to a question as to whether or not, under you, Secretary Gates, and your successor, the defense

posture will deteriorate. Will you comment on that question?

Gates. Well, I would not want to take credit for this because I have not yet been confirmed by the U.S. Senate.

Mahon. Have no fear.

Gates. But I would think that the management had improved. I think that the Congress, by passing the pay bill increase for the military people, has increased the quality and stability of the armed forces. I think that science and technology have given us ways of making more powerful weapons, and these offset the trends that you referred to.

We believe we have a good well-rounded program and have a number of new, powerful weapon systems coming along, or in being. While we hope that we are managing well, I am sure that we can manage even better than we are.

Mahon. Do you have the feeling that for 1960, 61, 62, 63, and 64, defense spending should be in the general area of \$41 billion?

Gates. Yes, because I feel we are in a continuous struggle with these people that may last for the rest of your lifetime and the rest of my lifetime. This is going to be the kind of spending that is going to be required to have adequate defense.

Mahon. I think you see my concern as to whether or not we can keep the ceiling constant and level while the price of everything is going up. Do you think that at least for the time being we need not be unduly concerned about that?

Gates. That is correct.

Budget Summary for Procurement and Research, Development, Test, and Evaluation Fiscal Years 1959-1961

(Millions of Dollars)

	New Obligational Authority	Direct Obligations		Expenditures		
		FY 1959	FY 1960	FY 1959	FY 1960	FY 1961
TOTAL, PROCUREMENT AND RESEARCH, DEVELOPMENT, TEST AND EVALUATION	18,068	17,278	16,995	18,343	17,873	18,316
Aircraft	6,588	6,828	5,200	7,423	6,442	6,459
Missiles	5,489	4,491	5,292	5,045	5,039	5,287
Ships	2,110	3,115	2,174	2,009	1,665	1,891
Other procurement items	3,150	3,706	3,426	3,203	3,790	3,762
Military sciences	470	550	522	411	549	535
Programwide management and support	254	247	231	251	248	231
Emergency Fund	8	141	150	—	141	150
PROCUREMENT—Total	14,293	13,090	13,085	14,800	13,605	14,364
Aircraft	6,134	6,143	4,753	7,004	5,940	6,013
Missiles	4,107	3,244	3,825	3,702	3,540	3,805
Ships	1,947	1,139	2,035	1,846	1,500	1,740
Other procurement items	2,105	2,563	2,471	2,246	2,624	2,806
RESEARCH, DEVELOPMENT, TEST, & EVALUATION—Total	3,775	4,189	3,910	3,544	4,268	3,952
Aircraft	454	685	446	419	502	446
Missiles	1,381	1,247	1,467	1,343	1,498	1,482
Ships	164	175	139	163	164	151
Other procurement items	1,045	1,143	955	956	1,165	956
Military sciences	470	550	522	411	549	535
Programwide management and support	254	247	231	251	248	231
Emergency Fund	8	141	150	—	141	150

International Security Affairs: The Other Side of the Coin

By no stretch of the imagination are International Security Affairs and Military Assistance synonymous. This is the other side of the coin . . .

by Fred Hamlin



The many treaties that enable the U.S. to keep up its all-important foreign military alliances are only part of the job that must be done by these offices.

PUBLICITY notwithstanding some of the busiest offices under the Assistant Defense Secretary for International Security Affairs have relatively little responsibility for the nation's Military Assistance programs.

These are the offices in ISA for National Security Council-Operations Coordinating Board Affairs, and for Politico/Military Affairs. They provide, in effect, a State Department within Defense, giving the Secretary long range guidance in foreign affairs, providing him with the day to day staff support he needs in filling his responsibilities within the framework of national policy, and giving the entire Defense Department a point of contact with State, while giving State both DOD contact and serving as a channel for much of the military advice and assistance they need to do the job.

As one yardstick for the amount of work involved, Defense Department has more personnel stationed overseas than any other organization in the country—including State Department. As another measure, a quick glance at the newspapers shows how much of the international news—from disarmament to Taiwan—has heavy military implications, or is directly a product of military operations in this country or overseas.

Foreign base rights, treaties, summit meetings, foreign military visitors to the U.S., world economics, all are the lot of the seemingly "quiet" side of ISA. And in each problem that comes up, there is the problem of coordinating just about anything that is done with the Joint Chiefs of Staff, State Department, National Security Council, Operations Coordinating Board and the three services.

To say the job is big is simply to underestimate the situation. Going beyond the near-overwhelming day by day operations, ISA is charged with long range planning in connection with its own programs, and in an advisory capacity, for NSC, OCB and State. With

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The Quiet Side'

Good will, as well as guns, are the concern of ISA's non-MAP responsibilities.



out this, comments one ISA officer, "it would be like walking around backwards in the dark. Many of the problems we have today would be only about half as sticky if we had been able to do more of this in the past."

Bearing the brunt of the load in ISA's non-MAP work are the various desks under the Deputy Assistant Secretary for Politico/Military Affairs, and the Planning Office under the Deputy Assistant Secretary for Plans and NSC Affairs.

There is a tongue-in-cheek briefing paper that is supposedly given to incoming area desk officers, which is not far from the facts in outlining the size of the job. The typical day for the desk man, says the paper, begins with his reading the newspaper, although "it is preferable to read three to keep current There then follows an attempt to read all of the government communications to and from each of the three countries [that he is responsible for]. This will include all the incoming and outgoing cables and dispatches of State, ICA, Defense, Army, Navy, Air Force, USIA and CIA. It also includes all the intelligence summaries prepared by all the agencies, the briefing papers prepared in the agencies, the flood of OCB paper, the MAP program plans and progress reports, and the routine papers from the agencies on the world situation

"Of a hundred documents that cross his desk, possibly a dozen have really pertinent information. He must know all about these twelve, however, for at ten o'clock he gets a panic call from the front office on the E-ring to explain why the currency in Ruritania is depreciated another 10% on the Grausarkian market"

Organized on about the same lines as the various desks in the State Department, the ISA desks have one basic difference: where State usually has one man per country, three or four nations per officer is the rule in ISA. This means that the ISA desk man

spends the equivalent of one or two days a week at the State Department working with, advising and receiving aid from his counterpart there.

He must at the same time work closely with JCS (usually J-5 Plans and Policy, J-3 Operations and the Director of Military Assistance Affairs) to make sure that what he does is in accord with military planning. This relationship will be made even closer in the future.

ISA finds one of its major problems, in meeting the almost impossible deadlines that are the rule rather than the exception. Best summation comes from an ISA desk man who faces the situation on a day to day basis: "We have stiff deadlines, every day of the week. Because of the DOD set up with three services, plus JCS, it takes on the average of ten days to two weeks to get a firm answer from them on a given question. This makes it a little tough when State wants a solid Defense position in 24 hours."

Because JCS runs the way it does, it is nearly impossible to get a definite answer on short order.

Because JCS staff members have no executive authority extensive staffing and coordination is necessary to get anything resembling the final stand which often must come from the Joint Chiefs themselves. Shrugs one ISA officer who deals frequently with the Joint Chiefs, "There is practically no informal way of getting around this. So we live with it, in spite of the drawbacks." Adds another, "Without doubt, they are working in many ways to improve this."

At the planning level, what amounts to a palliative, if not a cure has been developed for this sort of problem. This is an informal meeting each week of top-level counterparts in State, ISA and JCS, with the aim of going over "what are frankly very sticky issues," according to a regular participant.

The idea is to attack issues, and not

bureaucracy. By getting together on an informal basis, the result is often "pretty rough give and take," but the results would seem to justify themselves. For what is thrown out in such an atmosphere must be justified to survive, and there are few bad ideas or methods that can live without what might be called the cloak of organization.

No decisions are made in these meetings, but the free exchange of ideas often leads to a fresh approach to a problem, or at least a better understanding of the position that seemed so unreasonable in memo form.

The work in the ISA Planning Office has a surprisingly wider character than contemplation and forward thinking. By one officer's estimate, only about half of the available time is spent on what can be logically called long range planning. He adds, "Much of the remaining time is spent selling the ideas we came up with—not a new experience to anyone familiar with the task of projecting new lines of policy for any organization."

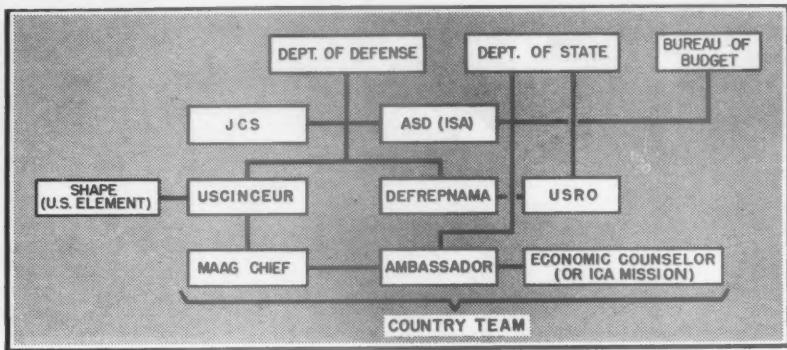
The Planning Office job description also includes advising the Assistant Secretary on emerging international problems, advising other ISA offices, and a variety of matters which do not fit within the defined responsibilities of other ISA offices. Despite pressures for short term work, however, valuable long range planning does get accomplished—for example, projections of long range policy guidance for NATO and base rights problems and evaluation of long term politico-military budget considerations. Planning activities have also helped the ASD (ISA) to provide forward DOD thinking for such matters as the Presidential goodwill trips, disarmament and the forthcoming summit meetings.

The reason for this is summed up in one of the items on the Planning Office job description, which is basically "everything else."

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The international complexities . . .



classed as short term work, and take up much of the time that would be otherwise spent on such matters as a ten year projection on NATO affairs and trends, or long term politico/military budget considerations. Working—short handed—in about the same areas, and on about the same time scale as Policy Planning in the State Department, ISA's planning group offers a full pair of hands to anyone who wants to see them. Comments one officer, somewhat drily, "All they want us to do is the impossible. I sometimes wonder how we manage to get it done."

If it is the planning group in NSC/OCB Affairs that gets the considerable overflow from just about everywhere, the initial brunt of the load falls squarely in the laps of the various desk officers under Politico/Military Affairs. The job is summed up by one of the busiest:

"We simply have no depth. We have to work with everything from dinners to visiting dignitaries, and act in every capacity from protocol officer to intelligence expert. In spite of his many overseas commitments, the Secretary of Defense has no protocol officer, as such. We're it. We work with press releases, Congressional inquiries, long range treaty negotiations (I've been working on one for a year and a half now), social calls, international meetings, some of the Coast Guard's overseas problems, and just about all of the odds and ends you can name. We do things we don't even have a charter for, because you couldn't write a charter that would be broad enough, and because there's no one else to do it."

What it amounts to is freelancing, and having an active or passive part in just about everything that involves another country and the Defense Department. Again, one of the major keys to success would seem to be informality. Admits one desk officer, "It would be practically impossible for us to get

the job done on a purely formal basis."

Another more general example, and perhaps strong justification for ISA, is offered by a high-ranking ISA officer: "Without trying to appear indispensable, I think it is worth noting that practically all of the business between State and JCS is run through ISA, even though we may only serve to pass it along. ISA helps both state and JCS to get the guidance they need from each other with the least trouble. This isn't meant to deprecate the efforts of either of the agencies—it's just that it's our business to know what's going on in these areas, and with the people we have here, we seem to be able to do the job well."

Between JCS and State

Perhaps a fair measure of the ISA job lies with certain Military Assistance Advisory Group Chiefs who serve in a near ministerial capacity on military matters. Actions on the part of the local government are usually checked with them, if they have military implications, and on visits to this country by the Defense Ministers involved, the MAAG chiefs not only accompany them, but take part in all military discussions—sitting on the visitor's side of the conference table. If this is not a standard arrangement, it is still worthy for having been built on a foundation of mutual trust and respect. And the smoothness of military cooperation where such arrangements exist offers heavy emphasis for the value of them.

The foregoing offers a quick picture of an area in which ISA is being forced to look for new ways of doing business. Offering a strong focal point for U.S. military relations in foreign countries, MAAG Chiefs have provided the U.S. government with valuable points of contact in foreign countries where this nation had a heavy military interest.

But because the MAAGs have done

their job so well, their original justification has been, in many cases, considerably lessened. The new problems are not so much those of training, organizing and equipping, but the more sophisticated headaches that go with more advanced military organizations. Such things as advanced production, production planning, and modernization of forces, with more and more of the total job handled by the local government offer a changed atmosphere for U.S. representatives abroad to work with.

One avenue of approach ISA is considering is that of setting up a larger civilian overseas work force. This would serve the double aim of providing the technical skills aided countries need, and offering ISA workers a chance to work overseas, thereby gaining in their perspective.

Such persons could conceivably be attached to the U.S. Embassy, maintaining the close Defense-State cooperation that is characterized by Washington operations. The aim is to aid U.S. foreign policy, and it is only to this aim that ISA is directed.

Referring once again to the parodied briefing for desk officers, one more measure is available: "The desk officer, however, has one great compensation. He can get more done effectively in this particular job than in any one he will ever have again until he is a Vice Admiral or Lieutenant General . . . The Desk officer finds himself not only clothed with the mantle of 'expertness', but also authority that he sometimes thinks he shouldn't have . . . He attempts to keep [his superiors] informed on the really important matters, but in the day to day operations, much is left to his judgment. These day to day operations in fact make policy . . ."

Adds one ISA officer, in a somewhat wistful tone, "For all of the frustrations, for all of the time when what looks like a good idea is shot down, for all of the headaches that are connected with this kind of work, I know of no greater satisfaction than seeing yesterday's idea turning up the day after tomorrow as one of the basic reasons behind a sound and reasonable U.S. Policy stand in its international affairs."

But no matter what sort of a rating system is used, it is obvious that the job being done by the office of the Assistant Secretary of Defense for International Security Affairs is one of the most important that the Defense Department must work with—and the smoothness of this country's overseas military relations and operations are the best testimony to the work that is done in the would-be "quiet side" of ISA.



Remington Rand Univac Military Division, who has guided the development of all the company's significant military systems.



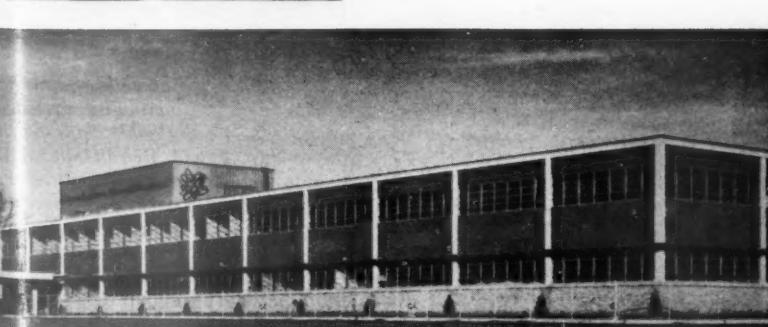
Noel T. Stone, Chief Engineer, Military Division: "Specialized operation enables us to concentrate on the unique demands of military development. Our reliability effort, for example, has no counterpart."



John H. Vye, Director of Manufacturing: "Complete facilities for design, development, testing, production and field service allow us to keep all elements of a program under one roof."



Lawrence Reid, Manager of Military Field Maintenance and Training: "Univac field maintenance is fully integrated with all phases of the military division, drawing at any time on the full resources and experience of the entire group."



James Redding, Director of Military Applications:
"Experience . . . We can only point to the work we've already done."

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The Paradox of Success

*How do you analyze the long range implications
of a successful research and development
project . . . And how do you get the money to buy all of the
really good hardware that is available?*

by Maj. Gen. Earle F. Cook
Deputy Chief Signal Officer
Department of the Army

ONCE every day, the average citizen sees something he would like to have, but can't afford. If this same citizen had developed all the items he wanted—at least working prototypes—we would have a situation like that which the Army is now facing in communications and electronics.

Near the end of the Korean War Army Signal Corps, through combat studies such as TEOTA (The Eyes of the Army), evaluated its arsenal of communication-electronics equipment to determine any major deficiencies. Research and development programs were begun to overcome deficiencies and provide the Army new, improved capabilities.

Many scientific breakthroughs occurred in the next five years and requirements for items for which there had been no previous demand were developed. An intensive R&D effort produced many of these new items and modifications for others. Significant new capabilities seemed just over the horizon.

As the development program got underway, the impact of missile/nuclear warfare became clear. Plans for overcoming Korean deficiencies ran headlong into one of the most abrupt and thorough revisions of military requirements in the history of warfare.

The Army had to scrap triangular type divisions for a new Pentomic or-

ganization. Increased mobility and the need for greater air and ground transportability demanded reduced size and weight. Wider dispersion and other changes in operations made it imperative that equipment operate over longer distances.

The ranges of Army's new missiles could not be fully exploited without significant gains in ability to find targets. Radars, photographic devices and sensory techniques—with better systems for data transmission and processing—became urgent requirements.

Critical reappraisal and project evaluation of the Army Signal Corps R&D program was quickly begun. Past performances in R&D clearly showed Signal Corps could not always know in advance that a given research effort would achieve desired results.

The Measuring Stick

Some projects led to major dividends at reasonable cost. Others succeeded technically, but cost more than equipment they were replacing. Still others consumed a large outlay of time and money without parallel results.

A new measuring stick was critically needed, to apply both before setting up a project, and regularly during development work.

Influencing development of effective project evaluation techniques was a draft of a 1955 Johns Hopkins Operations Research Office study (ORO-S-500), "Evaluation of Army Research and Development." The study said

Army's R&D program should place heavy emphasis on more advanced development. To support this, it compared the desired effort with Army's 1956 program. It indicated about 11% of the 1956 R&D effort was to improve equipment and systems that were 95% satisfactory, 43% to those 50% satisfactory, and 44% to those that were 75% satisfactory. Only 2% of the 1956 R&D effort was in areas where there were no existing items.

These challenging figures played heavily in building a method for evaluating Signal Corps equipment and systems projects. Army Signal Research and Development Laboratory selected ten factors directly or indirectly specified in practically all Signal Corps characteristics:

Mobility, Reliability, Flexibility, Ease of Operation, Vulnerability to Enemy Operations, Operational Planning Requirements, Power Requirements, Reduction of Unwanted Radiation, Portability, and Logistical Support.

To provide a comparative basis for finding how much improvement might be expected from a particular project, the Laboratory set up a system for comparing equipment under development—in terms of the ten different areas—to the item it would replace.

Each factor was assigned a rating from -2 (not as good) to +2 (much better). The sum of these ratings indicated the anticipated overall improvement which might be expected of the developmental item.

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scoring system, evaluated anticipated tactical employment, how long the existing equipment had been standardized, when service test models would be available, and other approaches considered for meeting the requirement.

Trial evaluation on over 170 telecommunications and radar projects was made. The result was better than ORO's findings, but not as good as ORO had recommended. More important was illumination of projects of questionable value. Of 115 telecommunication items reviewed, 36% required corrective action.

Because of these significant indications, in 1957 the R&D Laboratory reviewed all its development projects. Over 100 items were found marginal in value and 81 of these were terminated or suspended. A second survey in 1958 cancelled 13 additional projects.

An important corollary of these evaluations has been to improve management evaluation techniques within the Office of the Chief Signal Officer.

Beyond eliminating marginal development projects, Signal Corps still has more R&D requirements than it can meet with available resources. To do a timely job on the most important work, many less important tasks, even those to fulfill valid requirements, have been eliminated. Through continuous analysis of directives, requirements, plans and concepts, precedence has been established to concentrate development work on most critical and essential items.

Improved management in Signal Corps research and development has speeded development on many new equipment items. Others are in final testing, prior to production.

It is at this point that we encounter what I term the "paradox of success."

The Signal Corps' R&D program has been reasonably effective in meeting Army's need for new and improved capabilities.

More items are now available for procurement than the Army has money to buy.

That this is not limited to the Army Signal Corps can be seen in the remarks made by General Maxwell D. Taylor, former Army Chief of Staff, last year. "Facts are," General Taylor said, "that all three Services can justify in their own minds and to a large degree in views of JCS, requirements which far exceed the likely Defense budget."

To buy all the new Signal equipment that could be ready for production in fiscal 1960 would cost the U.S. Army about \$465 million. This is over twice as much as the Army budget can afford.

Many new items developed to meet valid requirements may never be bought. The cost is simply too great.

Why the Paradox

There are several reasons for this paradox. Our prosperous and expanding national economy which has seen continual increases in labor and material costs, for one thing. Missiles have dictated more complex equipment. Only a few years ago the main item for surveillance was a pair of binoculars. Today we have airborne side-looking radar, sensory equipped drones and ground surveillance radar—items for which no previous requirement existed, and all of them expensive.

Engineering changes also increase development costs. They represent about a third of the over-runs in Signal Corps' R&D work. This cost factor might be eased by setting certain check points during project development, (say each six months) at which time any engineering changes would be examined and agreed to by the contractor and Army. Then a moratorium could be declared on changes for an-

other six months.

Another important factor in the cost of re-equipping is the expanded volume of communication-electronic equipment now needed. Ten years ago an Army Corps had about 9,000 operated electronic radiating devices. A Pentomic Army Corps will have at least 15,000.

The Pentomic Infantry division, has considerably less people than its Korean War counterpart, but it has almost half again as many radio sets. This is only part of the story: because of added dispersion each tactical radio, as a rule of thumb, is now used an echelon lower than before.

Illustrating the size of the Army's funding problem is the cost to change to the newly developed AN/VRC-12, AN/PRC-25 and AN/PRC-35 radios, estimated at about \$300 million. Each set will cost two to three times as much as the one it replaces. A question arises on whether improvements justify the cost.

Comparative capabilities of the smallest of the sets, the AN/PRC-35, which can be a belt-type or helmet radio, with the AN/PRC-6 can be summarized:

Five times as much frequency coverage.

Forty times as many available communication channels.

Each channel uses only one-fourth as much of the frequency spectrum. Four pre-set channels compared to one for the AN/PRC-6.

Easier maintenance and better reliability from transistorization, modular construction and plug-in components.

Reduced logistics support owing to longer life, smaller size and lower battery cost.

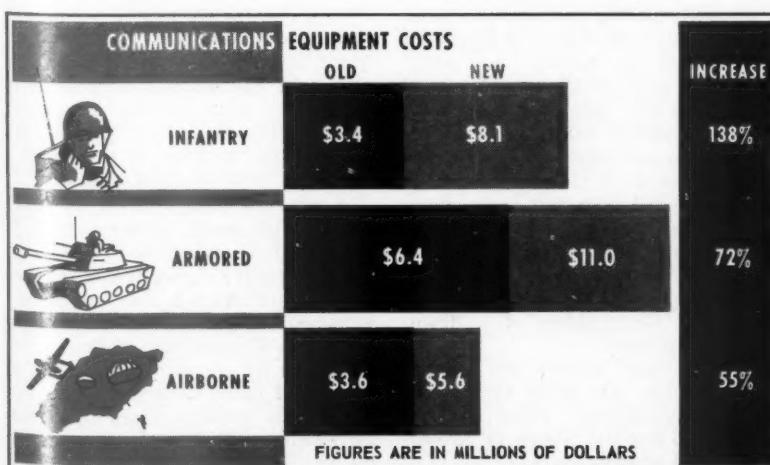
While these gains are impressive, they alone do not necessarily justify buying the radio. The advantages of each item coming out of development must be weighed and compared with others to permit realistic purchase lists, within the limits of available resources, and establishing procurement priorities.

Here we have another set of parameters distinct in many respects from the military characteristics mentioned earlier. And another question presents itself: Do these parameters, when generalized, provide a realistic key to solve our paradox?

Assuming purchase lists are approved and priorities set another important but complicated aspect must be resolved—how to phase-in the items Army decides to buy.

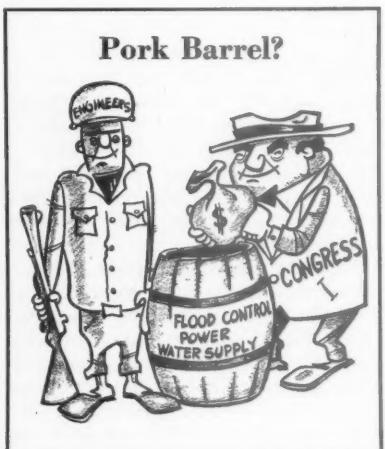
There are several approaches. Circumstances vary with the equipment in question and no single approach can be considered the school solution. Each admits to weaknesses and strong

(continued on page 50)



Keeping The Pork Out of Pork Barrels

by Col. Robert R. Robertson



FOR THE 135th straight year, Congress, before adjourning last year voted appropriations for the Corps of Engineers' civil works program.

This program develops our nation's water resources and protects its citizens from floods. It is a program of critical projects undertaken because they are beyond the means of local areas concerned.

Also for the 135th straight year, various uninformed but vocal elements have raised the cry of "pork barrel." As one omniscient columnist given to something less than perceptive reporting put it, "a going away present for congressmen."

That there are those who make such statements, and worse still, many more who believe them, betrays an abysmal lack of information on the water problem in the United States. It is particularly distressing to find many well placed individuals in the defense establishment, both military and civilian, who have fallen prey to this "pork barrel" sophistry.

While it may be a sad commentary on our progress toward becoming civilized, it is a historical fact that the material advancement of our race has been paced, in the main, by requirements of the military. It was the critical need of non-available engineers to build fortifications 140 years ago which inspired Major Sylvanus Thayer, an Engineer officer, to develop the U.S. Military Academy into the only school in the young nation qualified to train engineers and scientists.

A knowledgeable government soon recognized that only at West Point was there the talent needed to meet the technological demands of our expanding country. In 1824 Congress gave the Corps of Engineers responsibility for developing a transport system of roads, canals and waterways to weld the nation together. It was Sylvanus Thayer's students who undertook the job.

In 1824, the big problem was transportation. And the Corps of Engineers concentrated on making our inland waterways and our inland and coastal harbors useable. Improved waterways attracted villages which grew to become towns and cities. Floods became of great concern as each year the cities suffered loss of lives and heavy property damage. At first, the local people cleared river channels and built levees themselves to escort flood waters past their towns. Such local solutions merely aggravated the problem of a downstream community.

Dollars were wasted and enmity created before the need for a centralized coordinated effort became recognized. But the wheels of government grind slowly.

In 1927, the most disastrous flood in the history of the Lower Mississippi River occurred. Cities, towns and farms were flooded. Scores of lives were lost; property damage ran into the hundreds of millions of dollars and thousands were left homeless.

This great disaster awakened the nation to the dire need for a comprehensive flood control program. Various legislation followed, culminating in the 1936 Flood Control Act, in which Congress added to the Corps of Engineers' navigation mission the related responsibility of nationally developing flood control works.

It takes large dams to control floods. Large dams can also be used to generate power and store water during periods of plenty for use during dry seasons. As our country's continued growth put increasing demands on our rivers, the Engineers were given the job of creating works ancillary to flood control dams necessary to meet these other demands.

Our nation has grown up now, but harnessing the power of its mighty rivers is still far too big a job for local management. For example, the Mississippi River system is one of the world's greatest. Mark Twain had an idea of the size of the task when he said, "The Military Engineers have taken upon their shoulders the job of making the Mississippi over again—a job transcended in size only by the original job of creating it."

But even Sam Clemens would be amazed were he able to see "The River" today. The levee system on the main stem of the Mississippi alone consists of 1,565 miles of embankments containing enough yards of earth to fill a freight train reaching half-way to the moon. For every dollar invested in this effort by the Corps of Engineers, six dollars in prevented flood damages have been returned to date. These are only dollars saved—who can put a value on the lives saved and the human misery prevented?

Perhaps at this point those who cry "pork barrel" will agree that it is proper for the Federal government to be in the water resources business. Possibly then they do not agree with the way the program is conducted—the way "politics" enter into it.

A principal charge levied by critics of the public works program states, in essence, that unnecessary projects are built to benefit a chosen few or to create jobs in the districts of the various Congressmen. A picture is conjured up with each Congressman riotously voting funds for projects in the areas of interest of other Congressmen so that they, under previous secret cloak room agreements will vote for projects in his area.

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Public works projects originate where they are needed by the initiative of the people concerned. A disastrous flood, an expanding economy needing improvements in navigation, or similar circumstance caused local people to unite towards a solution. When the problem goes beyond their capabilities, an appeal is made to Congress. If the request seems reasonable, Congress authorizes the Corps of Engineers to investigate and report. This first report is based on an inexpensive preliminary investigation. It is made by an Engineer District, reviewed by a Division, reviewed again by The Board of Engineers for Rivers and Harbors.

The Board, after studying the report, sends it to the Chief of Engineers with its recommendation. The Chief of Engineers decides if a more comprehensive investigation should be made.

If further study is not justified, Congress is so informed and that is that. If it is, a more detailed survey is ordered, giving full consideration to engineering problems and probable economic benefits. (To speed the process, a recent procedural change eliminates the preliminary investigation. But it provides that the comprehensive investigation may be abandoned at any point that evidence warrants.)

Check and Doublecheck

Again the long check and double-check process through District, Division, Board, and Chief of Engineers. If the project will not return more than one dollar in benefits for every dollar invested, it is automatically recommended against. If it appears economically and engineering sound, Congress is informed.

Here again, the project encounters a lengthy, laborious screening. It runs the gauntlet of the Bureau of the Budget and various Congressional Committees before Congress votes to put it on an approved legislative list. Subsequently, it must go through a similar process before funds are made available.

The preliminary studies are not pre-factory gestures. Over the years, the Corps of Engineers has recommended against 55% of the proposals investigated.

Commenting on this, General MacArthur said "There is one attribute, perhaps it should be classified as an accomplishment, which has been overlooked. It is the unswerving capacity of the Corps to say no—to resist all pressure from whatever source, high or low, to enter upon unwarranted projects involving great sums of money. Billions of dollars thereby have been saved to the government . . ."

To those who are familiar with the procedures, the complaint is that the elaborate screening is delaying work on many needed projects. A rather different picture of the civil works program from that painted by the purveyors of the "pork barrel" illusion.

A rosy picture, but to the skeptic's mind comes a question—the pay-off question. What has the Corps of Engineers' civil works program created to date besides tradition and some stringent screening procedures?

In its 135 years of supervising the civil works program, the Corps of Engineers has received annual appropriations varying from \$75,000 in 1824 to almost \$900 million in 1959. During this 135 years, total expenditures for all facilities—dams, power houses, locks, levees, channels, harbors—have been less than \$8 billion.

For the \$8 billion invested to date, United States has 2800 active Corps of Engineers' projects which include:

A navigation system second to none in the world—23,000 miles of improved waterways and 500 harbors. In 1957 over 230 billion ton-miles of traffic used this system.

The Great Lakes Navigation System, the St. Lawrence Seaway, the Mississippi River, the Ohio River, to name a few, are all parts of this inland waterway system.

Flood control works, though only partially complete, have prevented \$9-billion in damage over the past 12 years. When the present system is completed, the taxpayer will receive some three dollars in flood damages prevented for every dollar invested.

Just under 28 billion kilowatts of hydroelectric power are generated annually at Corps of Engineer dams. This represents over 20% of the total U.S. hydroelectric output.

Releases from reservoirs for power generation, navigation, and flood water drawdown all supply water for domestic, agricultural and industrial use. Also, where feasible, Corps of Engineers' reservoirs provide space specifically for water storage. Some 40 cities and towns throughout the U.S. derive their water supply directly from such facilities.

Over four million acre feet of storage are provided for irrigation water. Further, releases from these reservoirs are becoming increasingly important in supplementing major rivers during low flow seasons.

Corps of Engineer reservoirs and waterway projects provide over six million acres of land and water surface for fish and upland game and the nesting, resting and feeding area for millions of duck, geese and other migratory waterfowl.

The pork barrel psychology is par-

ticularly dangerous today. It casts public doubt on a program critically important to the nation's future. The need to maintain a military posture, the need to meet an economic challenge around the world, and the need to absorb an explosive population growth variously estimated as forty to sixty million in the U.S. in the next 15 years, will combine to demand an unprecedented expansion of industrial, commercial and agricultural capacity.

Department of Commerce, in an official report, concluded the Federal Government alone must spend \$28 billion on flood control, navigation, water supply, and hydroelectric power over the next 15 years if we are to keep up with the demands of our growth. For the same period, the total Federal and non-Federal expenditures needed to meet water use demands was set at \$231 billion!

What many people, even those who understand the need for rapid development in this area, do not realize is that today we are irrevocably dictating the limits on our water supply 15 years from now. This is not an exaggeration. It is in fact most conservative. The lengthy process of investigations, surveys, authorizing legislation, appropriations, and finally design and construction, consume a minimum of 15 years.

Pork barrel? In this land of abundance in the last five years, over 1,000 communities housing over 15% of our citizens have had to ration water. Corps of Engineer flood control works now prevent \$600 million in damages each year, but an equal amount of damage occurs in unprotected areas. Our waterways handle over 230 billion ton-miles of traffic each year, but newer, larger and more efficient tankers and barges already have made obsolete many of our locks and river channels.

Pork barrel? Our problem is too little too late. History is replete with the chronicles of civilizations that have risen and fallen as they succeeded or failed in their efforts to develop and maintain water resources. It is of more than academic interest that the advance of early western civilization followed the development by those surprisingly competent Roman Engineers of water supply projects throughout Africa, Europe and Western Asia. Of even greater significance is the fact that destruction by the Goths and the subsequent neglect of these great water systems was a major contributing factor to the decline of the Roman Empire.

Such projects are a part of our overall defense effort just as surely as is the development of weapons. We must each consider it a duty to see that the "pork barrel" myth does not do to our civilization what the barbarians did to the Roman Empire.



WAVE: So you just gave eight men the Air.

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WAVE: *That* must have cost Uncle Sam plenty...

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TRANS WORLD AIRLINES
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WEST COAST AIRLINES
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THE PROBLEM of the military Commander is complicated by one factor not common elsewhere; he must manage his single workforce in a common mission under at least two differing personnel and career systems. His officers and enlisted people must be managed under a military personnel and career system, and he must manage his civil service personnel under the Federal civil service system.

The Cordiner Committee assertion that "the modern military man-power problem reduced to its simplest terms is one of quality rather than quantity"

MILITARY vs. CIVIL SERVICE

The Common Goal: Better Personnel

by Truman Benedict

The unique situation that faces the military manager on the personnel front derives from the two different systems his personnel work under. The problem of more quality in personnel is the common denominator. The analytical comparison offered here points the way to improving both systems, assuming a willingness to give-and-take on both parts. Both personnel structures have their strong points, and both have their weak ones. By comparing these, Author Benedict comes up with what could be considered a composite picture showing the way to improvement.

is a contemporary reflection of a perennial condition. The military services have always needed quality people. For example, the Army employs, for every five military folk, two civil service civilians. The requirement common to both is individual quality.

But individual quality must be generated in Army military-civilian organizations under both the Army military personnel and career system, and, for Army civil service civilians, under the Federal Civil Service personnel and career system and Army policy within that system.

Probably both systems were initiated for identical ends. Management has always desired quality in people. The goal of a mission well done almost automatically induces military management to work systematically to bolster personnel quality. More attractive incentives, better recruiting, more effective placements and assignments, better training, and more valid selection practices, are most often proposed for such ends. But, while the common goal of developing better qualified people through more attractive career and development opportunities is fundamental to both systems, the specific means employed by each to achieve this end are almost diametrically different, in concept, principle, and authorized practice.

Quality staffing is significant in all areas of specialization, and in every military function. More sophisticated problems and the resulting complex work and management technologies probably determine that what may be thought of as the managerial-technical staffing of the military establishment is most critically important. At least, this is the contemporary value the Cordiner Committee underscored.

There are highly technical processes to be performed and to be managed in

The management of violence . . .

today's military enterprises. The techniques of the 'management of violence' are among the most sophisticated technologies in modern society. A military officer as a 'manager of violence' must be a manager of its technology, at least in its application, as well as a manager *per se*. The technical services officer may not be so literally a 'manager of the application of sophisticated systems of violence,' but he must manage the support system which makes possible the application of these means of violence.

Every individual officer must therefore possess managerial-technical capability. And individual civil service civilians in mission elements of military-civilian organizations — research, development, engineering, production, procurement, supply, maintenance — and in many staff elements must contribute a complementary managerial-technical competency.

Thus we have the individual military people of the military service system, each managed under one of three different pay and career systems: enlisted, warrant officer and commis-

sioned officer. Career progression from the lowest enlisted grade to the highest commissioned officer grade is not unknown. The opportunity is there, but it is many times more probable that the career enlisted man most often remains within the enlisted system alone, or within the enlisted and warrant officer systems together.

The commissioned officer system recruits replenishment at the Junior (2nd Lt.) level, to assure its continuity as a career corps, to provide managerial-technical competency for managing the performance of available resources in fulfilling the military mission.

The Federal Civil Service personnel and career system is also characterized by three pay and career systems: Wage Board, Wage Board-Supervisory, and General Schedule. An individual can enter the civil service system at the lower WB grades, for example, and can progress up the WB system, or on to the WB-S or GS system.

An individual can also enter the GS system at a relatively low level and progress upward in that system alone. Because of the technical expertise in-

volved, and other factors, transfers and promotions between the systems occur discriminately, but they do occur.

Unlike the military service, the Federal civil service has no clearly identified corporate delineation between those who are predominantly managers of performance and those who are more performers. Where the Federal military service has an officer corps which is a career service to provide its continuing managerial-technical competency, the Federal civil service has no such concept or component.

It does have an opposite number to the warrant officer system, in an inverse sense which is more analogous to the commissioned officer system, but for the trades and crafts only. The WB-S system includes those who are technically competent in a trade or craft, and who supervise others in the trade or craft. The discriminating factor is supervisory responsibility coupled with technical competency, but it applies only to functions performed by the trades and crafts.

What do these differing systems mean to the executive who must manage his military-civil service workforce as a single force working to fulfill the same mission under differing personnel systems; what is the influence on

The Navy's Polaris: *from nowhere to anywhere*

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him and on his mission accomplishment, and what is the influence on the individuals of each system? Comprehensive answers to these questions would make a book; only a few aspects can be touched here.

The military man's base pay is consistent with his rank, without regard to his job; the civilian's pay varies with his grade, and his grade varies with his duties and organizational position. In the military service, a Major may have several different positions during a tour of duty, to provide a personal skill needed at a particular time in a particular place, or to give him a chance to gain particular experience toward career development; or, more likely, for a combination of such reasons. The officer remains a Major in all jobs regardless of his duties. Under the civil service system, the individual holds the grade of his position; the duties of the position, legally set up in a job description, then allocated by specialty and grade, determine his base pay while in the position. One system is more flexible and helpful both to corporate aims and to individual career aspirations; the other is less flexible.

The efficiency rating and reviewing system of the military is basic to that

system; ratings relate directly to the officer's future assignments and selection for promotion. They provide a proficiency index which classifies individual demonstrated performance in relationship to other individuals.

The efficiency rating system in the civil service is perfunctory, rates the individual against position requirements rather than against peers, and seldom has significant influence on future selections and assignments.

Why the Difference

Perhaps the critical reason for such significant differences as these in the two systems is this characteristic omission in the civil service of a civil service officer corps, of a professional managerial-technical competency at least equivalent to the military officer corps.

The line between the managers of performance, and performers, in the military is clearly delineated. The conservatism of the military is hardly comparable with the liberalism of unionized industry, yet the clear line between "management" and "labor" which characterizes the modern corporation is also apparent in the military service. Yet a Federal civil service markedly characterized by industrial

personnel practices (unions, grievance procedure) lacks the clear management-labor distinction apparent in both the military and in unionized industry.

Instead, there is virtually no distinction between "management" and "labor" in Federal civil service—as a system. Government unions solicit membership with little regard for grade or position. The union welcomes the GS-15 supervisor just as readily as the WB-15 worker, even though one may be chief of a large operating division (and so be "management") and the other an individual craftsman.

Thus, the lack of a clearly identified managerial-technical corporate group to exercise management of performance in the civil service affords a towering obstacle to genuine management-employee relations, just as it does to the genesis of a genuine career system for Federal civil service officers.

C. Wright Mills, in *The Power Elite*, says forthrightly: "The United States has never and does not now have a genuine civil service, in the fundamental sense of a reliable civil service career, or of an independent bureaucracy effectively above political party pressure."

This is language fully understandable to the military service officer, for

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Erupting from the ocean that blankets most of the earth, the Navy's Polaris missile will have the range to reach any strategic target. It will be launched from mobile bases that are safe from surprise attack—nuclear-powered submarines that cruise fast and deep for weeks on end, each carrying 16 Polaris missiles. This is the Navy's Fleet Ballistic Missile system. It becomes operational this year. Lockheed is prime contractor and system manager for the Polaris missile.

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MISSILES & SPACE DIVISION

it follows the idea of the career officer corps as a bureaucratic profession and organization, whose members are individually immune to changes in political power.

It is hard for some military officers to see why the civil service system does not allow its officers comparable freedom under a system such as their own. Both are in the service of the same government; both are freely sworn servants of the same free state. The fundamental reason may be an attitude, or some conceptions about an attitude.

Besides the absence of a civil service officer corps, with its own prestige, career system, ranks, and commensurate pay system, perhaps this further obstacle has a bearing: The Federal civil service, intrigued with material goals, economic incentives, and organized rights which characterize industrial worker personnel practice, may have substituted the values of materialistic individual freedom for those of individual membership in a corporate service dedicated to the idea of freedom as institutionally expressed in a form of government. It may therefore find the burdens of 'subordinating self to service' an unacceptable idea and an unwelcome obligation.

Samuel P. Huntington, in his *The Soldier and the State*, says, "The (military) officer corps is both a bureaucratic profession and a bureaucratic organization . . . rank inheres in the individual and reflects his professional achievement in terms of experience, seniority, education, and ability . . . in all bureaucracies authority derives from office; in a professional bureaucracy eligibility for office derives from rank. Although in practice there are exceptions to this principle, the professional character of the (military) officer corps rests upon the priority of the hierarchy of rank over the hierarchy of office."

If this is as true as it sounds, then the Federal civil service suffers not only from lack of an identified officer

corps, but lacks a professional career character because of its own insistence, (the Classification Act for example) upon allotting priority to the hierarchy of office over the hierarchy of rank.

Civil service officers, without rank-in-the-person, are utterly dependent upon attaining organizational office. Positional status must precede personal status, rather than attained capability, as witnessed by rank, being a prerequisite qualification for attaining office.

For the equality of opportunity for consideration for promotion which characterizes the military system, the Federal civil service substitutes equality of pay based upon (sometimes relatively temporary) occupancy of a given position. Peter Drucker seems to be talking about this fundamental difference when he says, "Perhaps most dangerous is the confusion between equality of opportunity and equality of income and rewards. The first is a dynamo of economic incentive. The second is deadly poison."

Economically motivating incentive awards programs may serve like aspirin, to allay symptomatic discomforts. But location and correction of more fundamental systemic factors may require a more penetrating diagnosis and more radical corrective treatment, if both the corporate programs of the Federal government, and the individuals engaged in their management and performance, are to find mutually satisfactory fulfillment.

Perhaps the greatest value to come from comparing systems like these is to raise questions concerning the relative desirability of some features of both.

The Federal military service personnel system is characterized by centralized promotions, man-to-man comparisons under a cumulative proficiency rating system formally influential in assigning and promoting individuals, and pay related to personal rank achieved rather than to position occupied.

The Federal civil service personnel

system is in the military establishment characterized by extensive delegations of authority to major commanders with the requirement that these authorities be re-delegated to installation commanders, both for position classification and for individual appointment and promotions. This occurs under a system in which the economic status and the personal status of the individual is almost entirely dependent upon organizational office, and under a system characterized by perfunctory appraisals which are most often deliberately divorced from effective, formal influence on official personnel actions inevitably interrelated with attainment of office, retention of it or separation from it.

A question which informed representatives of the Federal military service and of the Federal civil service might profitably face together is this: What common features of more comparable systems offer greatest value for quality-staffing the entire corporate needs of the Federal service worldwide, while providing optimum career and development opportunities for individuals to find rewarding, productive, and satisfying experiences in both the military career service and the civil career service of the Federal government?

Professor Wallace Sayre, writing in *The Federal Government Service*, as long ago as 1954 said, ". . . the career (service) idea not only has major value conflicts within itself, but in some respects it runs counter to other deeply cherished American values. . . . This is not to say that the career service idea is incapable of adaption and broad use in the Federal Civil Service. It is meant to suggest that the idea must be transformed from an uncritically endorsed panacea into a carefully thought-out plan, shaped to fit comfortable and positively into our social and political processes. The conflicts and difficulties inherent in the career service concept must be faced up to—as they have not yet been—and solutions must be worked out with imagination and inventiveness."

Of all of government, the Federal military service has the most to offer in experience with career service, both as to concepts and means, for consideration 'with imagination and inventiveness' by those designing innovations toward a Federal civil service which is a career service. And the military service has an obviously impressive stake in optimizing the Federal civil service system to the more exacting modern management needs of Federal government and of Federal programs as important as those of National security.



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The System Approach To Defense Contracting

A summing up of the complicated business of system contracting with the conclusions and recommendations that could possibly make for a more efficient and economical way of buying major hardware.

by Phillip R. Wheeler
Bureau of Naval Weapons

IN PART I of this series, the background and history of the system approach was presented. Part II covered Pros and Cons voiced by various people. In this Part III Conclusions and Recommendations are made.

In Part I, several major issues were raised concerning merits of the all-out system approach to Government contracting for development and procurement. They are worth restating with brief conclusions, based on earlier discussion and evaluation.

The large system type contract with full design and procurement authority vested in a single prime contractor is usually not in the best interest of the Government:

- a. It results in higher costs than direct contracting.
- b. The procuring activity loses control over funds used.
- c. It may be detrimental to small business.
- d. It tends to be detrimental to standardization.

The total system concept, in which a single prime is given full responsibility for defense items involving several major sub-systems is *not* the only approach to the coordination and scheduling. A modified approach may give the prime contractor full *coordination* responsibility, but only partial development and production responsibility.

Has the limitation of Government personnel been carried too far, so that the wise expenditure of the taxpayers' money is not assured?

In some cases the answer is "Yes." Primary reason is that the basic aim of private business is a profit—not acting as guardian for taxpayers' dollars.

A modified system approach is desirable. The all-out system approach is

not necessary for management and administration.

Examples show the all-out system approach is often detrimental to standardization. Personal experience with several contractors with partial system contracts has shown considerable effort needed to get contractors to carry out the standardization program. Each contractor would like to have all spares obtainable only from him.

In what follows, each of the advantages and disadvantages stated will be evaluated.

Item 1—Reduces the Number of Government Employees:

1. Reducing Government employees is desirable, within certain limits. But, the small number of Government personnel handling system developments is more the cause, rather than a reason for all-out system approach.
2. In some cases, the number of Government personnel available to direct and monitor important programs has been kept below the point of economy and good management.
3. Technical monitoring of research and development work by competent Government personnel normally pays off in lower costs and better equipment.
4. Where reasonable technical monitoring is not provided, some contractors become careless or indifferent to cost factors.
5. If technical monitoring is to be provided, then small Government technical groups must be relieved from heavy burdens of non-technical responsibility. This is especially important with today's rapid increase in our technical knowledge and problems faced in every technical field in trying to keep up with new developments.

Item 2—System Approach Provides a Single Central Responsibility:

1. Some degree of central responsi-

bility is essential to good management of system type development.

2. But needed coordination (or central responsibility) may be obtained without giving the prime contractor full responsibility for major items supplied by other contractors.

3. This procedure will operate more certainly if there is central direction from a Government technical group with good background and competent judgment.

4. Coordination can be eased by the following:

- a. Reasonable planning and scheduling.
- b. Promoting teamwork among all participants.
- c. Setting up and using control devices such as:

- (1) Development Specifications.
- (2) Specification Drawings based on feasibility of space, weight and other limitations. (To establish basic design).

- (3) Coordination drawings (which may be prepared by a separate contractor).

- (4) Automatic distribution of all technical information, to all concerned or interested. This must be set up at the start of a program by the Government technical group.

- (5) Adequate liaison between activities.

5. If direct contracts, rather than subcontracts are used, a small number of added Government employees may be needed to handle these contracts.

6. Small businesses are not necessarily hurt by the system contract, although they may be in some instances. Small businesses have a more nearly equal chance to share work where the prime has only coordinating responsibility and not full development and procurement responsibility.

Why use the modified approach . . .

Item 3—Contractor Can Hire Enough People To Do the Job:

1. Hiring enough people for the job is essential, but not an unqualified advantage in all situations. In fact, it can be seriously abused by contractors.

2. These abuses can cause excessive costs, due to such things as stockpiling personnel, confused management from hurried expansion or insufficient internal training programs.

Item 4—Eliminates Red Tape:

1. Red-tape (in Government) with additional direct contracts will not be serious if development work is not broken into too-small sectors.

2. Top management promoting common sense can do much to eliminate the red-tape factor.

Item 1 of Disadvantages—Higher Costs:

1. Evidence indicates that the full system approach to contracting increases costs.

2. An important factor in this can be lack of technical monitoring by competent personnel from the responsible Government agency.

3. Discretion is needed to determine how far to break down a system development for the purpose of direct contracts and for avoiding large sub-contracts on which additional fees are paid.

Item 2—Government Loses Control of Much of Work:

1. Unduly limited Government personnel mean responsibility must be delegated sometimes beyond good management.

2. Usually, the Government function must be primarily direction and control. The problem is finding just how far this direction and control can be reduced and still guard Government interests.

3. While some Government administrators are tempted to shed all possible responsibility, examples show this can be costly to Government and taxpayer because of: (a) Different motivation between contractor and Government personnel. (b) Industry indifferent to the best interests of the Government.

Item 3—Prime Contractor Tends to Move Entire Development Into His Own Plant—Small Business May Suffer:

1. Advantages which a prime may point to in moving work to his own plant might include: (a) Having the work in close proximity makes it easier to coordinate. (b) Travel costs may be reduced. (c) The need for formal

specifications may be reduced.

2. However, such advantages are primarily applicable on smaller developments, not truly the system problems considered here.

Item 4—Standardization Goals Will Suffer:

1. Large system-type contracts make full standardization more difficult.

2. More education and monitoring is needed to get contractors to use and obtain full benefit from standardization programs.

Item 5—Lack of Incentive to Keep Costs Down:

1. Lack of incentive to reduce costs is important in high-cost missile and aircraft work.

2. The Government is in a particularly poor position when a contractor uses a partly contractor-owned and partly Government-owned facility with adjacent buildings.

3. Absence of real incentive for contractors to keep costs down is a problem warranting further study.

Experience shows time and again that *competition is normally the most potent and effective device for cutting costs.*

Yet many practices in defense activities work to prevent competition. Chief is constructing and equipping development and production facilities to be turned over to private contractors.

Having built a facility, equipped it and hired several hundred employees, considerations for changing place of development or procurement put the defense activity in a dilemma.

If the item produced is put out on bid and manufactured elsewhere, the facility is idle. This could lead to criticism for investing in the facility.

Thus, when a facility is built for a contractor, the defense activity has married the contractor, for better or worse. While DOD generally has the right to change management, divorce has been extremely rare.

Even when work is not done in Government-owned facilities, the buildup of personnel, experience, and installations during development of a missile or aircraft provide strong arguments to continue work with the same facility. It would seem that construction of new facilities for contractor management should be kept minimum.

There is general feeling that relationships between negotiators and contractors often become too friendly. Office of Naval Material believes a contractor should be viewed as an opponent, one towards whom negotiators must always be on guard.

Navy also recognizes our industrial

achievements have only been possible because of the profit-motive—that without this, industrial energy and drive would be lacking.

Incentive type contracts have been the subject of considerable thought and some use. But many feel, that if a contractor knows he will have a chance to reduce costs and retain a percent of the reduction, that his price or bid will be influenced.

A somewhat similar arrangement is the so called Value Engineering approach which is receiving increased attention. Here again arrangements are often made so contractor may receive as much as 40% of savings affected from the bid price.

In view of the foregoing, the following recommendations are made:

1. For system type contracting for development use the *modified* system concept. In this approach, the prime is used primarily as a coordinator for that work he does not do himself. This implies maximum use of direct contracts to all major activities participating in a development; and full use of coordinating devices and controls described.

2. Place particular emphasis on teamwork by encouraging adequate exchange of information and contacts between personnel of all participating activities.

3. Relieve small Government technical groups from heavy nontechnical responsibilities by providing nontechnical personnel.

4. Develop an information program to create greater awareness in Government personnel of the public trust they hold.

5. Develop an information program for contractor personnel to build greater awareness of the need for cost consciousness in developing defense equipment.

6. Appoint representatives from several Government activities to develop—if practicable—a contracting method giving greater incentive for cost consciousness than present ones.

7. Contract for and insist on scheduled delivery of good engineering documentation.

8. Once design has been proven, use competitive procurement with hardware broken down into reasonably sized equipment or problems, and with direct contracts for each major item.

9. Construct new Government owned facilities only as a last resort.

(This three part series has been in large part a condensation of a thesis prepared by the author to complete work for a Master's Degree in Engineering Administration at George Washington University in 1957.)

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Fresh Attack on Rising Costs

Norair Division of Northrop Corp. is using a new technique to predict costs on its N-156F counterair fighter program. The results are a fly-away cost of only \$535,000—certainly remarkable on the going market. This is how the system works . . .

A TARGET Cost System to monitor aircraft cost factors at the design stage has been introduced by Norair Div. of Northrop Corp. on its N-156F Counterair Fighter Program.

Target cost predicts the manufacturing cost of a weapon system during design development. It has to be applied to a new project from the start. This is the reason its first application is on the N-156F rather than the T-38 jet trainer, from which the Counterair fighter derives.

This is the second methods program initiated by Northrop to attack rising defense costs. The first was PACE (Performance And Cost Evaluation). PACE is a measurement index to determine effectiveness in performing an assigned task. It may be applied to any project (See Apr. 1959 AFM).

The Target Cost System will be applied to any and all new projects at Northrop's Norair Division, said R. R. Nolan, vice president and general manager. "Target cost takes profit and loss right down to the drawing board," he said.

Northrop is developing the N-156F to provide a low cost air defense for allied nations. The company's monitoring system will enable it to see that a target cost for each major part is met in every stage from preliminary design to final assembly.

"The Target Cost System applied to design is very similar in objective to weight control programs," said G. F. Douglas, vice president in charge of Norair's engineering department. "Instead of pounds, we are dealing with dollars."

"It is my opinion that the Target Cost System will be a highly successful tool to help design engineers build cost savings into the product," Douglas continued.

"At this stage, the system indicates that on the N-156F prototypes we are under target with tooling, but over target on labor and materials. With the N-156F production design, our Target

Cost System tells us we are under target on all three; labor, tooling and materials."

Northrop describes its Target Cost System as solving these five basic needs:

(1) To know if a new design can be built within company estimates in time to take corrective action.

(2) To find areas that will yield the greatest cost reductions within the limits of contractual quantities and schedules.

(3) A tool for Engineering to use in achieving the most economical design for Manufacturing's ability to make realistic estimates for labor and tooling and to meet the actual performance requirements to meet the target cost.

(4) Materiel's ability to make realistic estimates and to procure equipment and material items within the target cost concept.

(5) Accumulating cost data for accurate information to predict more accurate and complete cost for future models.

Setting up the Team

With established groups in Engineering, Manufacturing, Materiel and Contract Pricing organized as a team to manage operating techniques and procedures, and using their own line organizations in developing program data, Northrop's Target Cost System starts out by aligning engineering drawings and manufacturing section code numbers for major sections and section units. With this, the company is able to develop and collect cost for each of the major section and section unit items. Major sections consist of the major structural system breakdown of the airplane. Section units are a further breakdown of the major sections. Predicted costs also apply to random costs in assembling and installing section units into major sections.

A production plan is prepared defining the design, manufacturing, tool-

ing and materiel concepts of the major sections and section units of a given product. Product Plans established for the N-156F include 34 structures and 12 systems.

A typical Product Plan format would include:

(1) An engineering description. (2) A detailed discussion of design construction covering items including skin, frames, extrusions, forgings, assembly sequences, tolerance requirements, and interchangeability. (3) A description of manufacturing, including tooling requirements, assembly procedures, techniques, contract requirements. (4) A summary of material by quantity and description, including raw materials and contractor furnished materials. (5) Weight estimates for cost-per-pound data to serve as a balancing check for various types of structure and systems components.

An effective revision procedure is maintained during the design phase to record all changes to the original Product Plan and their costs. This serves as a design history of each system and component; and provides the designer and management with the knowledge at all times, of design decision progress.

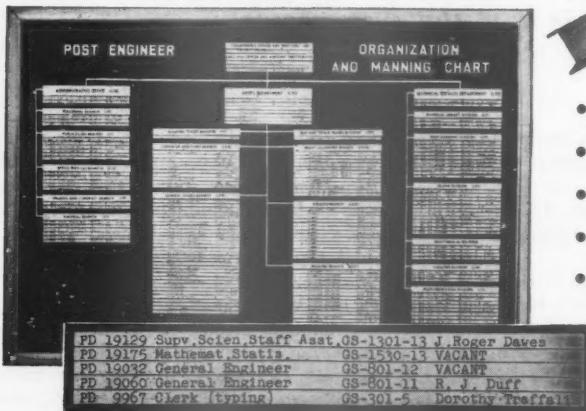
Target costs for major sections are adjusted and related to the selling price of the weapon system for a designated quantity. The target cost remains fixed and changes only when customer requests drastically effect the original concept.

Predicted costs are developed from statistical data and estimates of direct production labor hours. The predicted cost does not change during the process of design.

A new column of figures labeled Adjusted Predicted Costs is used to record deviations from the Product Plan. A closely controlled monitoring and check-back system is maintained for each Product Plan to evaluate anticipated changes as rapidly as possible. Comparing adjusted predicted costs to the predicted and target costs serves

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as a barometer on design progress.

From final engineering drawings, calculated costs are determined. These are developed by the tooling engineering organization from the actual production of the operation sheets and tool orders comprising operational breakdown and estimated standard hours data. Calculated costs complete the first cycle for the Target Cost System. They serve as a detailed check on whether Northrop can meet target costs.

The final check plan will be to collect actual cost at various increments during the manufacture of a weapon system. Comparison of actual and target costs will reveal design proficiency, and Manufacturing, Tooling, and Materiel's ability to meet target costs.

The cost premise for the N-156F was based on two selective quantities and all costs were kept in this relationship: (1) Cost to build one prototype airplane (the prototype is the third fully equipped version); (2) Cost to build the 1,000th airplane at a monthly production rate of 30 units.

All change decisions, whether design, manufacturing or materiel, from the original Product Plans, are based upon these quantities.

The Master Chart

To maintain the dynamic movements of cost, a master target system chart summarizes all the major section and section unit items for the N-156F Weapon System. Some of the interesting highlights shown on this chart are:

1. The relationship of cost of various types of construction, such as honeycomb versus buildup; fuselage versus wing.
2. Non-dimensional cost-per-pound data for each item as a measure of cost variation between different structures and systems.
3. The relevance of total system costs to total weapon system cost. (For example, total system cost of the N-156F is more than 50% of the total weapon system cost on a production quantity basis.) This shows the amount of money spent outside the company by requiring effective managerial control for the weapon system contractor.
4. The effect of changes over the adjusted predicted cost column are easily viewed and compared through the target values indicating cost increases or reductions. The most significant concept of this new cost program at Northrop is that designers and management may observe design progress in relation to the manufacturing cost of the weapons system and, thus, may make design decisions more effectively by balancing performance, quality and cost during the design phases.

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Pentagon Profile

This Month:

Franklin Benjamin Lincoln, Jr.

Assistant Secretary of Defense (Comptroller)



LIKE Rip Van Winkle returning home is the way Franklin B. Lincoln, Jr. describes his appointment as Defense Comptroller, as of 2 December, 1959.

What impresses him most, says Lincoln, is not the number of problems, "although certainly we still have them," but the terrific progress that has been made in the fourteen years since he left the fiscal end of the defense business to go back into law practice in New York.

Adds Lincoln, "we have a fiscal organization in the Pentagon today which those of us in the business fifteen years ago couldn't even imagine possible. Today, even though they wear different uniforms, the Services think and act in money matters along the same guide lines, follow the same procedures generally, and speak the same language."

"We have tools now which we never had before to help solve the problems. And I have found today a great deal of willingness to cooperate rather than the pulling and tugging that went on fifteen years ago when we were first trying to set up a sound system for managing the money."

Lincoln's only regret: "I am so new, I don't know how much help I can be to Tom Gates and Jim Douglas in this very critical budget area we are in now."

It is a fairly safe bet that Lincoln's own natural ability plus his experience in defense high finance and his legal dealings with some of the largest business corporations in the country will help considerably until he acquires the experience in handling the ins and outs of today's Defense Comptroller's operation—comptroller experience which was second nature to his predecessor

and the only other comptroller in Defense history, Wilfred J. McNeil.

Son of a New York builder and architect, Lincoln was born in New York City in 1908. Ever since he was old enough to think about such things at all, Lincoln has always wanted to be a lawyer, spent a good deal of undergraduate time on the debating teams before his graduation from Colgate University in 1931, a Phi Beta Kappa. He received his Bachelor of Laws degree from Columbia in 1934, was admitted to the New York Bar the same year.

The Navy Background

Upon graduation, he joined the law office of Sullivan & Cromwell, when John Foster Dulles was senior partner there. Seven years later he founded the New York law firm of Lundgren, Lincoln & McDaniel, was called into military service shortly thereafter, first as a civilian assistant to Commanding General Somervell of the Army Service Forces and later as a commissioned lieutenant in the U. S. Navy.

Upon receipt of his Navy commission, he was promptly assigned as counsel to the Chief Disbursing Officer of the Navy, one W. J. McNeil.

Because McNeil had a personal responsibility for the dispensing of some \$2-3 billion a month in Navy funds, the then-top-Navy boss James Forrestal and others felt McNeil needed legal counsel for his actions, appointed Lincoln to the job.

Convinced that there was a lack of fiscal direction in the Navy (and every other service operation for that matter), Forrestal gave McNeil strong encouragement to streamline archaic procedures—such as the pen and ink en-

tries into ledgers, a holdover from ancient history still being tried in early World War II days.

To do the job in the Navy, Forrestal set up a Fiscal Director (McNeil) and added Lincoln as McNeil's civilian counsel and assistant fiscal director. New efforts in the fiscal management business ordinarily don't stir up much conversation. This one didn't either, but as far as fiscal management was concerned, it amounted to a revolution, gave McNeil and Lincoln authority to look into all fiscal management operations in all parts of the Navy.

The outcome of their efforts was a streamlining of Navy money handling procedures into almost a banking operation, a financial reorganization of the Navy Department so sound that many of the fiscal reforms were later included in the National Security Act which set up the Department of Defense in 1947.

Lincoln left his job as McNeil's right hand man in 1946, went back to New York to build his law practice.

The Unexpected Bid

Divorced from the Defense scene, he nonetheless maintained close contact with personal friend McNeil, was always interested in McNeil's comptroller problems, frequently discussed them over lunch either in New York or Washington. In late 1959 when McNeil decided to resign after 12 years as Defense Comptroller, he asked Lincoln if he would accept the job if offered it. Says Lincoln, "I had no idea five months ago that I'd be back down here. Certainly it was the last thing my partners wanted because we were so busy. But McNeil, as you probably know, is very persuasive and, for that matter, no responsible man should turn

down an opportunity for public service—particularly in such an important area as National Defense—if the key people in public service believe he can be of assistance."

As far as the workload is concerned, Lincoln has discovered no great difference in the hours, as with most of the top men in the Pentagon, adds that "it's a great deal like law practice as far as workload is concerned. And if you enjoy the work, which I do, you don't pay much attention to the clock."

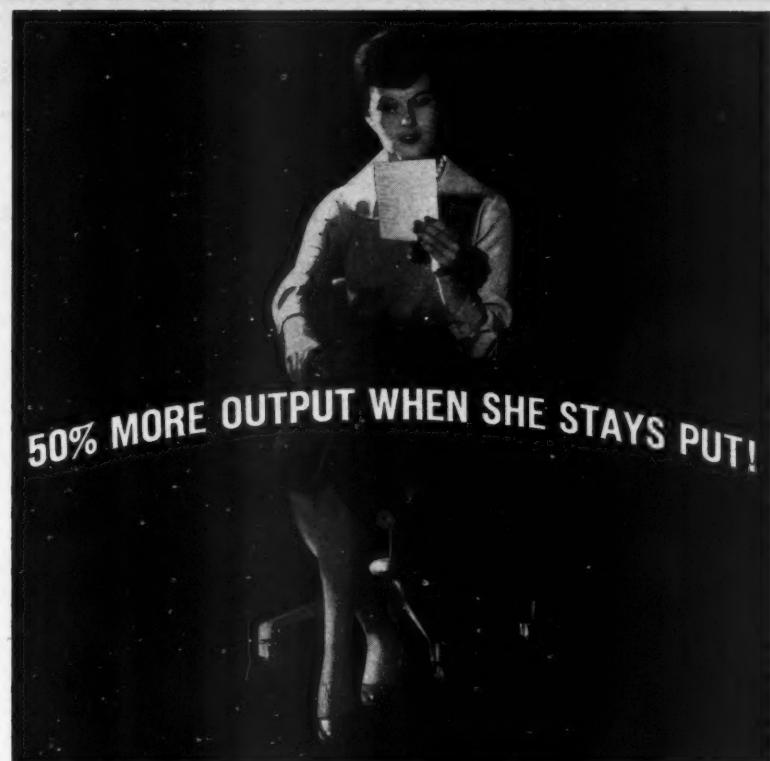
One other Lincoln impression about his new job (probably most significant because he voiced it when he first hit office rather than, as most appointees do, including it in a valedictory): "There are about 170 persons in the comptroller's shop. From having seen them work, I am extremely impressed with one fact—as a group they are outstanding. There is an aggregation of talent here which I am convinced you could find in no corporation in the country, no matter how big. I have had business dealings, through my law practice, with many segments of the economy—including some of the nation's largest corporations. I would stack these people against any one of them."

"Outstanding Contributions"

A big fan, as well as a friend, of ex-comptroller McNeil, he has been outspoken, both before and after accepting his present job, in stating that McNeil "has made one of the most outstanding contributions to the welfare of this Nation of any individual in the country. (He usually cites quickly the often-overlooked items such as the setting up of stock and industrial funds, and greatly reducing complexity of the budget appropriation accounts from several hundred in the Navy alone—in Lincoln's World War II time—to a mere fraction of that number for the whole Department of Defense.) I only hope I can carry on effectively the many outstanding projects he has conceived and developed so well."

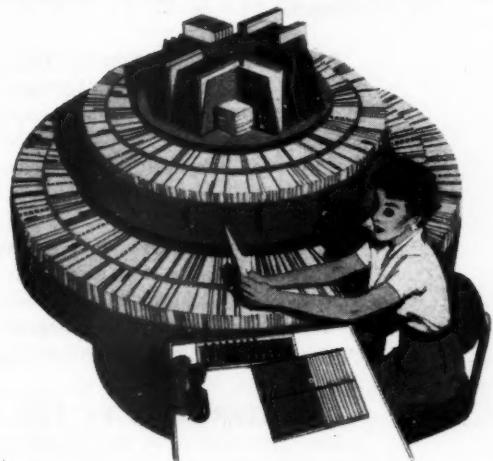
A distant relative of his presidential namesake Abraham Lincoln, Franklin Lincoln tells one of Abe Lincoln's stories which probably best describes how he feels today, faced with a monumental task of controlling some \$41 billion a year in new funds: "After his first year in office, a freshman Congressman looked back and observed, 'I spent the first six months in Congress wondering how I had gotten there. I spent the next six months wondering how everybody else had gotten there.' Adds Frank Lincoln, 'I feel like that man during his first six months—and, probably always will.'

FEBRUARY 1960



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Research Rundown



STARVATION DIET FOR MANNED AIRCRAFT RESEARCH seems to be one of the keynotes of the President's budget, which allowed for no new development programs, tended to whittle back on those already in the works. The scoreboard: F-108, dead; B-70, still a "research" project, but as a weapon system, dead; Dyna-Soar, slowed for lack of funds, Aircraft Nuclear Propulsion program, dormant.

LESS RESEARCH IN FAVOR OF PRODUCT IMPROVEMENT seems to be the order of the day, at least as far as Air Force is concerned. Major funds seem to be directed to such programs as Hound Dog, Sky Bolt (Douglas' air-launched ballistic missile, GAM-87—A rose by any other name . . .) in general, programs that can revolve around the B-52.

IN SPITE OF PRESIDENT'S STRESSING MISSILES, ATLAS AND TITAN appear increasingly competitive, even though political considerations preclude an either/or decision. Titan is unquestionably the better missile—on the drawing boards. On the other hand, Atlas is ready to go, in spite of relative technical drawbacks. Since the need for the big, land-based missile is dubious on a continuing basis, a dollar-conscious segment of the Pentagon is wondering why Titan stays alive.

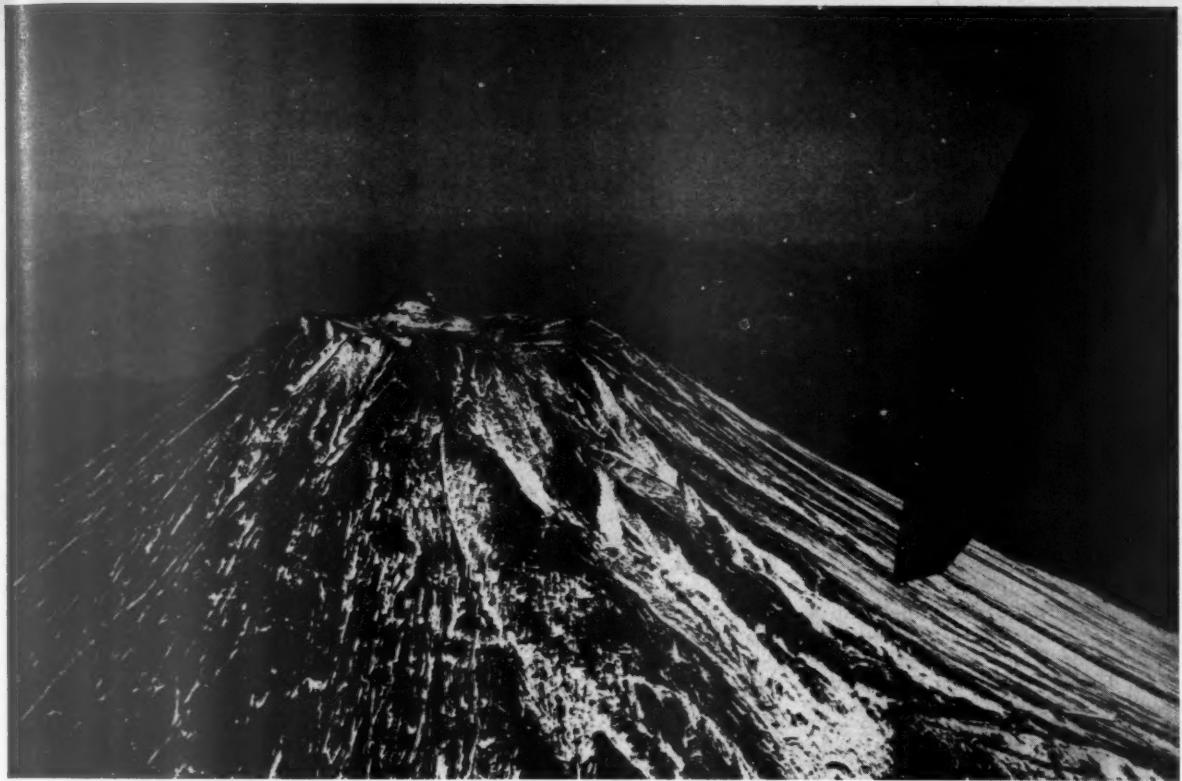
HEAVY EMPHASIS ON BETTER RESEARCH MANAGEMENT was placed recently by ARDC Commander Lt. Gen. B. A. Schriever. Said Schriever: "I think it is quite clear that the technology does exist. It is not so clear that the management exists." Better management, he said, would best be directed to cutting lead times on such vital projects as military space and reconnaissance systems.

PRESIDENT'S PROMISE OF "DOUBLED SPACE EXPENDITURES" appears to contain more smoke than fire, more public relations than reality. Most conservative estimates whittle expenditures back to a 62% increase, giving the President every benefit of the doubt. And this without drawing the so-far undrawn line between expenditures and actual budget—or for that matter, new obligatory authority.

ALTHOUGH THE SPACE INCREASE LOOKS GOOD ON PAPER, this is probably because it is, essentially, a paper exercise, in many cases just a matter of who signs the paycheck. Case in point: transfer of Saturn from ARPA to NASA. It's still the same program, costing about the same amount, but being under NASA it suddenly becomes part of the space effort.

BRIGHTER SPOT IN THE NOT-SO-BRIGHT RESEARCH PICTURE comes from testimony on the Hill by Secretary Gates, outlining the possibility of a second generation IRBM to be used by NATO nations. Such a missile would be mobile, solid-propelled and might follow general Polaris lines. Tortuous route would be in store for such a project, with warhead control and money problems paramount. One possibility: industry-sponsored development, as has been used with N-156F counter-air fighter.

ALL IN ALL, THE OUTLOOK FOR RESEARCH, under the fiscal 1961 budget—as proposed by the President—looks grim. Pentagon sleuths are still trying to find out what other areas—besides the "space effort" and "ASW" (see p. 9)—are increased simply on paper, with no actual stepped-up funding. Comments one weary Pentagon executive, "It's amazing how much you can rearrange the same amount of money in an election year, without changing hardly anything."



Looking down at Fujiyama with one prop feathered!

EVALUATION TESTS IN JAPAN PROVE AERO COMMANDER'S SINGLE ENGINE CAPABILITIES

The scene is an unretouched photo taken at 15,000 feet of Mt. Fujiyama, (alt. 12,388 ft.) Japan, through the cabin window of an Aero Commander 680E. Right engine dead, prop feathered, the Aero Commander easily circles the peak on one engine. Aboard are six men, full fuel load, complete radio equipment including HF—the 680E is a 7,500 lb. gross weight airplane.

This feat was one of many tests in an evaluation program for the Japanese navy. Routine Aero Commander demonstrations have included similar single engine flights, under full load, *looking down* at Pike's Peak, Mt. Blanc, Matterhorn, Jungfrau, Popocatepetl and many others. Deliberate cross country flights with *one prop removed* have further proved the single engine capabilities of the Aero Commander.

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Research Rundown

New ARPA Director Outlines Agency Role

Continuing work for the Advanced Research Projects Agency is foreseen by ARPA's new director, Brig. Gen. Austin W. Betts. Betts said his agency can provide central management needed for certain high-cost or high-priority functions which cut across service lines.

Betts called for decentralization, giving people with responsibility the authority they need to do their jobs. But in certain limited areas like ballistic missile defense and rocket propulsion, requirements go beyond any single service needs.

Using solid rocket fuels as an example, he said if ARPA were able to develop a solid rocket fuel with a 20% greater performance than the present propellants, all three services would benefit. Betts said Minuteman, Pershing and Polaris missiles would all be able to carry larger warheads over longer ranges, in spite of service affiliation.

Regarding ballistic missile defenses, Betts said that cost of inter-service rivalry would be out of bounds, therefore requiring central management.

Helicopter Industry Looks at the Future

Helicopter speeds up to 350 mph, and payloads up to 50 tons are within the capabilities of today's industry, according to Philip L. Michel, chief of advanced research at Sikorsky. Michel added that greatly expanded research and development activity would be the main prerequisite for creating such aircraft.

Such a development in the helicopter industry would go a long way towards meeting Army's requirements for low, slow tactical aircraft which have high payload capabilities.

Michel said "Research results indicate that the helicopter can be designed to achieve speeds from 200 to 300 miles an hour by various means . . . These include greatly increasing negative blade twist to delay blade stall on the helicopter's retreating blade; increasing rotor solidity by adding more blades; and using such auxiliary forward propulsion as turbine engines with conventional airplane propellers."

He said that fixed wings provide added lift and promise greater speeds. Michel said that helicopters will be able to carry 50-ton payloads by 1970,

and that design work is already in progress on a 20-ton craft with a range of 50 miles.

Navy Missile Radar Sees Over Horizon

Naval Research Laboratory has developed a radar system that can look beyond the horizon to detect incoming missiles.

Navy calls the new system one of the most significant breakthroughs in radar work since radar itself was developed.

The new system is called Project Madre, in connection with its key component—Magnetic Drum Receiving Equipment. The system can pick up moving targets up to 2600 miles away.

Using relatively low power, Madre bounces signals off the ionosphere, thereby greatly increasing its range. Although it uses the same technique as the previously announced Project Teepee, Navy claims Madre is much more reliable and practical than the earlier version.

Navy is building a \$4 million prototype Madre station on the Chesapeake Bay. Antenna will be some 330 feet long and 150 feet high, and may offer Navy one answer to the Russian submarine/missile/bomber threat.

AF Wants Space Craft, ARDC Officer States

Growing Air Force interests in manned aerospace vehicles was predicted recently by Colonel Norman C. Appold, Special Assistant to the ARDC Commander for ARPA/NASA affairs. Appold said such vehicles would find a use in both strategic and limited war.

Appold saw moving men into space as the logical continuation of existing AF missions, and pointed out that there is no clear cut line between air and space.

In the early warning area, Appold said Project Samos would provide pre-launch data to increase warning time still further. Basically, Samos is a reconnaissance satellite.

However, many Pentagon officers are currently apprehensive of the chance that Samos will be strangled for lack of funds. By the end of the fiscal year, about \$300 million will have been spent on Samos.

Pentagon sources claim that with adequate funding, Samos could be crash programmed through in no more than a year or two.

Polaris Moves Ahead, But Not Very Fast

President Eisenhower has given Navy authority to build three more Polaris submarines in fiscal 1961. This constitutes no expansion of the original program for twelve submarines.

In spite of the non-expansion policy being followed on Polaris, Budget Director Maurice Stans cited this program as one about which BOB had "no doubt."

In other news on Polaris, Navy has announced that a new, fully transistorized shipboard fire control system will be installed aboard the *George Washington*, commissioned last month.

Able to operate under all sea and weather conditions, the fire control system will provide inertial guidance for the Polaris missiles. Developed by the Ordnance Division of the General Electric Co., the system will also provide information needed for control of missile launching, including monitoring and controlling countdown procedures.

R&D Obligations Announced by DOD

New obligations for research, development, test and evaluation totalled \$1,310,711,000 for the four-month period ending Oct. 31, 1959. About \$4.3 billion was available for this account.

About \$250 million has been held for later apportionment by the Budget Bureau or Defense Department. Obligations for new hardware in the so-called procurement and production account were \$3,832,703,000 out of a total just under \$20 billion. Again, failure to apportion funds accounted for about \$4 billion of the full figure.

RDT&E expenditures accounted for \$975,178,000 and procurement for another \$5,312,420,000. Total services expenditures for all purposes as of Oct. 31 amounted to: Army, \$3.11 billion; Navy, \$3.72 billion; Air Force \$6.53 billion.

Atomic Fuel Gauge Developed for Navy

A new fuel gauge, using atomic energy sources to measure fuel in aircraft and missiles, has been developed for the Navy.

The new gauge is said to measure with greater accuracy and reliability than conventional devices. The lightweight, transistorized gauge has been

tested forming test, in bombers.

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tested at altitudes to 38,000 feet, performing accurately during the entire test, installed in a twin engine jet bomber.

All solid and liquid propellants can be measured, and performance is not effected by fuel impurities. The gauge is easily installed, and automatically accounts for differences in hydro-carbon or petroleum-based fuels which affect accuracy of conventional devices.

Gamma rays given off by radioactive materials such as Cobalt-60 pass through the fuel, and determine the fuel quantity by the intensity of the rays that reach detectors.

The gauge was developed for Navy by Atomics International, a division of North American Aviation, Inc.

Common EDP Language To Be Developed Soon

A common business oriented language called COBOL, for writing instructions on business-type problems for any digital computer may soon be available.

COBOL, written in English and independent of computer make or model, was presented in a report of the Short Range Committee to the Executive Committee of the Conference on Data Systems Languages.

The conference is a voluntary group of computer users from government and industry, together with computer manufacturers.

The COBOL committee consisted of technical personnel from three government agencies and seven different computer manufacturers. In the first six months of their work the group put together the first business data processing language for programming a wide variety of electronic computers.

Their final report was submitted to the Executive Committee this month.

Navy is Testing System For Helicopter Stability

An improved system for stabilizing light helicopters is currently being tested by Navy. Known as the Helicopter Stability Augmentation System, the device aims at making light helicopters more practical in anti-submarine warfare and air-sea rescue operations.

Besides improving instrument flight and landing on moving ships, the device will greatly reduce pilot effort in stabilizing their craft.

The system weighs only nine pounds, and uses rate gyroscopes as primary components.

The stability system was tested on the Bell HTL-7, and was developed by Autonetics, a division of North American Aviation, Inc.

Industry Developments

New RCA Laboratory Covers Communications

A new Surface Communications Systems Laboratory to help to keep military electronic equipment up with changing methods of warfare has been dedicated by Radio Corporation of America.

The new facility will provide modern scientific quarters for the type of work RCA has previously done for Signal Corps at Fort Huachuca, developing a complete area communications system for Army.

Using radio, telephone, television, radar and other electronic means, a general could keep continually posted on shifting battle in an entire zone. Also, the lab will be used for work on other advanced electronics systems, such as global communications for the Air Force and the Minuteman solid fuel missile.

In dedicating the new facility, Walter G. Bain, RCA Vice President said, "The modern Army commander . . . must have at his finger tips a mass of information on the changing tides of battle that but for electronic techniques, would be staggering.

Individual man-pack radio and television receiver-transmitters, portable

radars and many other types of sophisticated equipment would be involved. These are representatives of the areas in which we are collaborating with Signal Corps at Fort Huachuca, and on which very substantial progress is being made . . ."

New Reporting System Set Up by Convair, GE

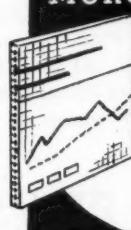
Convair/Fort Worth, working with General Electric Co., has become the first major aircraft contractor to set up its own failure reporting system, independent of Air Force, and in connection with the B-58 program.

Handling the reports between themselves, GE and Convair have at least halved processing times on such reports. Reports were formerly processed only through Air Force channels. Air Force is now given carbon copies of the new Trouble Failure Reports, while actual problem solving is handled by Convair and GE.

The new system complements the Air Force Unsatisfactory Report method. Air Force has fully endorsed the system, and has requested that a similar arrangement be used for B-58 test squadrons at Carswell AFB, Texas.

The plan allows Air Force to simply monitor the reporting process, without having to become actively involved. The program was worked out in connection with GE's supplying J-79 engines for the B-58.

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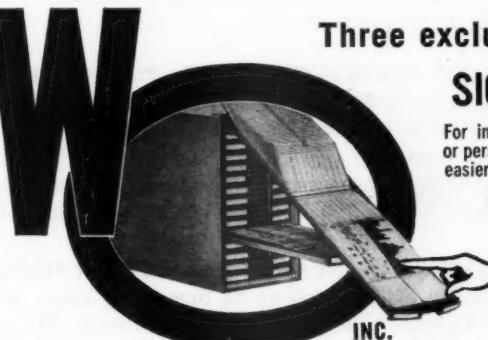
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Procurement Trends

NEW AWARENESS OF LIMITED WAR PROBLEMS is a theme running through the President's fiscal 1961 budget. Tactical aircraft (mainly Republic's F-105), new weapons for the foot soldier, and a new carrier for the Navy are a major part of this theme. Encouraging note: all of this is apparently being done without heavy inroads on the many other defense programs.

FOR THE ARMY, A FLOCK OF NEW, SMALL MISSILES will provide atomic punch, if and when it is needed, in tactical situations. Red Eye, Mauler, Davy Crockett and Missile A were noted by name in the budget message. Their number, and generally short-range nature, would seem to imply early production, using propulsion/guidance systems already available with small—in size—atomic warheads.

CONVAIR/POMONA WILL HANDLE MAULER PRODUCTION, although Army hasn't put it in writing to date. Reason for the delay: Army wants to make the most of the interservice cooperation aspects in using what were—and are—Navy supported facilities. More significant: the definite step away from the Arsenal way of doing business on Army's part, moving in the weapon system direction.

WORK DONE ON TERRIER IN THE POMONA PLANT is being hailed by Convair as an "outstanding team effort," through which "costs have been cut time and time again." Reliability on the missile has been high, and Convair has been able to substantially increase production rates, while at the same time gradually reducing the number of people needed to do the job.

THE OBVIOUS—IF UNWRITTEN—PENALTY CLAUSE that industry faces for lack of reliability and quality control in government business is summed up by an official with one of the corporations that has pioneered in this area: "If we can't produce reliability, they just won't buy the product."

TACTICAL TROOP AIRLIFT WILL ALSO RECEIVE MORE THAN A NOD in fiscal 1961, with number of planes bought expected to go up some 40%, over fiscal '60. This will mean about 26 planes of this type are to be on the shopping list for the coming year.

INCIDENTAL DATA PROCESSING INTELLIGENCE: To date, Air Force is the only service that maintains a central clearing office on all of its data processing procurement work. Navy handles such buying on a Bureau basis, Army works through Tech services, and/or such organizations as JAG. AF office is in Directorate of Statistical Services.

WAIT-AND-SEE POLICY ON POLARIS PROCUREMENT was stated by Defense Secretary Gates before the House Appropriations Subcommittee. In essence: DOD will wait until Polaris is really ready to go before asking for the money needed to step up procurement from the present three-a-year rate. Gates acknowledged the possibility of coming back to Congress for supplemental money during this year, but in spite of Polaris successes, this is not too likely.

SAVINGS OF NEARLY \$20-MILLION HAVE BEEN LOGGED BY SAC as a result of its setting an all time flying safety record for 1959. Figures are by way of comparison with 1958 accident costs. The reason behind the record: SAC has long been running from-the-top-down management pressure on all levels to improve its record in this area. The score: only three accidents per 100,000 hours of flying time.

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completely redesigned for faster and greater production



NEW D6 SERIES B

93 HP	19,495 lb.
Flywheel	Max. drawbar pull
Cat D333 6-cylinder Diesel Engine	
5 speeds forward, 4 reverse	
Operating weight, 18,280 lb. (74" gauge)	

Rugged matched attachments for the D6 and D4 include Bulldozers, Tool Bar, Scraper, Rock Rakes, Winches, K/G Blade, Rippers and others.

NEW D4 SERIES C

65 HP	13,000 lb.
Flywheel	Max. drawbar pull
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5 speeds forward, 4 reverse	
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Improved starting engine for both tractors has recoil starter for fast starts. Also 12-volt in-seat starting available. 24-volt direct electric starting optional.

NEW ENGINES

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NEW INTEGRAL HYDRAULIC SYSTEMS

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NEW OPERATOR CONVENIENCE

Cockpits are all new. Co-ordinated controls reduce hand movements and speed every operation. Forward-reverse lever (new on the D4) is next to the operator's right hand to speed 'dozer cycle times. Short-travel transmission speed selector shifts gears easily, quickly.

Work-styled—all the way through. These two new tractors answer your need for faster, higher production and greater operating economy with great new improvements described here *plus* famous Caterpillar time-proven features . . . dry-type air cleaner, hydraulic track adjusters, lifetime lubricated track rollers, the oil clutch, the forward-reverse lever. Here are machines completely redesigned to lick the tough challenge of today's fast-paced jobs!

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**BORN OF RESEARCH
PROVED IN THE FIELD**

Support Directory Issued by Defense

About 200 items of missile ground support equipment are listed in a new directory prepared by Defense Department as part of an effort to standardize equipment wherever possible and avoid the start of new development when existing equipment can do the job.

Called "Technical Resources Directory—Ground Support Equipment for Guided Missiles," the directory is available from Office of Technical Services at the Commerce Department.

It includes a listing of military technical organization most familiar with each piece of equipment. Pentagon is promising that it will be kept up to date, and will include equipment actually in production or use, and equipment under development and planned.

The report covers standardization, technical capability of industry to meet requirements for ground support, possibility of downgrading requirements to allow use of standard commercial equipment and a number of other management problems.

Under current plans, the Technical Directory will provide a look ahead for five years to show designers and builders what will then be available, while the Air Force loose leaf at this time is limited to equipment actually in use or under development.

The program is designed to encourage maximum use of what is available, rather than to permit the start of new development when designers can make do with what they have.

Air Force to Attempt Worldwide Inventory

Air Force will try this month to manage a simultaneous worldwide inventory of its supply and equipment assets. Previous inventories have necessarily been run on a phased, class by class basis.

Due to electronic data processing equipment and fast, accurate communications, Air Force can now manage a simultaneous count.

To be handled on an experimental basis, the February inventory is expected to develop information which will let Air Force know whether such a simultaneous inventory will work.

Commenting on the experiment, Gen. Thomas D. White, Chief of the Air Staff said "because our weapons

are becoming so complex and so costly to support, we must insure that we obtain full and effective use of all of our available assets. This inventory will give us current asset data, and provide an improved base for future requirements and budget computations.

"This alone will more than pay for the effort and the cost involved. Because of the magnitude and importance of this undertaking, all elements of the Air Force will participate."

Industrial Supply Agency Established by Navy

Following the Defense Department's reorganizing military general supply operations under a Single Manager, Navy has set up a Military Industrial Supply Agency.

The new agency will have Single Manager responsibility for three initial groups of supplies. These groups will include such items as brushes, paints, hardware and abrasives, and metal bars, sheets and shapes.

At the same time Navy was named single manager for industrial supplies, Army was picked as single manager for military General Supplies. Aim is to avoid unnecessary duplication in procurement and supply management with resulting economies.

For these commodities, Navy will perform wholesale supply functions for all three services. Navy is also single manager for medical supplies, petroleum and sea transportation service.

Military Assistance Funds To Be Raised in FY 1961

Obligations for Military Assistance Programs in fiscal 1961 will be about \$1.7 billion, under the President's budget. The President also said he would ask for new appropriations of \$2-billion.

This funding is somewhat short of the level recommended by the Draper Committee, in its thorough study on Military Assistance Programs. The President's budget proposals come in the face of recently reduced U.S. aid to Nationalist China.

The reduced aid to Taiwan forces will mean that a modernization program underway there will be drastically curtailed. Only seven of 21 Nationalist divisions have been modernized under the program.

In his budget, the President said "the 1961 Military Assistance Program squarely faces the pressing need for new and costly weapons for which the

Free World still looks for help from the United States." Eisenhower said major changes are being made in management organization and programming military assistance.

Government Tool Use To Be Reviewed GAO

General Accounting Office is working on a program for more intensive review of contractors' use of government-tooling facilities, Controller General Joseph Campbell has told Congress.

Reporting to the Joint Committee on Defense Production, Campbell said the program was being intensified "with particular emphasis on the adequacy and effectiveness of controls exercised by the military departments to assure that the use of such tooling does not give one contractor a competitive advantage of another, and that adequate rental or other consideration is received by the government for the use of the tooling."

Campbell said previous reviews showed two cases where rent was not being received by the government "even though two contractors involved were making substantial use of the government tooling on non-government work."

The GAO chief said his agency is reviewing price analyses which have preceded contract negotiations in connection with its regular program for auditing defense contracts. Estimated tooling costs are considered in this part of the investigation he said.

Campbell added that audits of negotiated defense contracts have so far disclosed no instances in which violations of the Armed Services Procurement Regulation governing the use of government-furnished tooling have occurred.

Pacific Operations Reorganized by AMC

Air Force plans to inactivate two Pacific Air Materiel Areas and to relocate Headquarters, Air Materiel Force, Pacific Area from Hawaii to Japan by April 1, 1960, according to AMC Commander Gen. S. E. Anderson.

The changes stem from AMC's success in providing direct support from Continental United States to overseas organizations. The direct support program has eliminated the need for much stockpiling at overseas depots.

To be inactivated are Headquarters, Northern Air Materiel Area Pacific now

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at Tachikawa, Japan, and Southern Air Materiel Area Pacific, now at Clark AFB.

Substantial personnel cuts will result from the streamlined organization. In 1955, there were about 24,000 AMC personnel in the Pacific. Under the new organization the number will be down to about 9,200 early this year.

Parts Availability Worries Air Force

Air Force is working hard to prevent its first line aircraft and missiles from being out of commission for lack of parts.

For aircraft, Air Force wants to be sure that necessary parts will be available from base resources within twenty-four hours. For missiles Air Force is faced with problems in both the missile itself and ground support equipment parts.

Air Force is aiming for better management practices rather than higher spare parts procurement levels. To do this, supply needs for aircraft and missiles will be filled on a priority basis.

Stock objectives are to be continuously reviewed to assure adequacy. Storage site stocks for parts to these aircraft and missiles are to be made adequate to satisfy all support requirements. Interchangeable items will be used wherever possible.

Planes and missiles which will be affected by the program are the B-52, F-101B, F-105, F-106, KC-135, Bomarc, Atlas, Titan, Thor, Jupiter and Minuteman.

Three More Atlas Bases Planned by Air Force

Air Force hopes to have three more Atlas bases ready sometime in 1962. This news comes from Army Engineers, who have been authorized to advertise for bids on propellant loading systems for Atlas missiles for work to be completed by January 1, 1962.

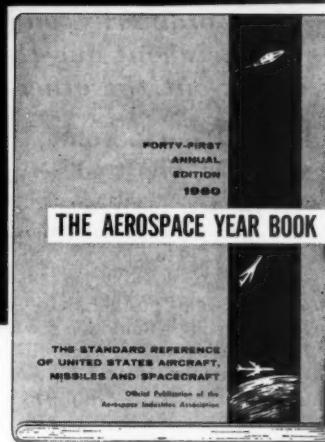
This authority could mean that the three bases (Vandenberg AFB, Lincoln AFB, and Schilling AFB) are tabbed for completion and possible action later that year. Four more Atlas bases are being prepared at Cook AFB, Warren AFB, Offutt AFB, and Fairchild AFB.

The bids call for fueling equipment for the Atlases, including valves, piping, instruments, assembly testing and installation at all bases except Vandenberg. Procurement will be handled through the Fort Worth office of the Corps of Engineers. The seven planned sites involve expenditures of between \$15- and \$20-million for propellant systems alone.

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The First Of Fourteen Erroneous Postulates

1—Men, ordinarily and on their own initiative, contribute about one-third of their capacity; leadership draws out the other two-thirds.

by Leland B. Kuhre,
Col. USA(ret.)

Founder and Director
The Academy of Organizational
Science

Proposition—The postulate is erroneous as a starting assumption for creating or sustaining a true organization of collective human effort. To demonstrate this, certain definitions are needed.

Definitions—The *true organization* of collective human effort is a dynamic system of relations ordering, connecting, and guiding all expected, needed, individual human contributions through a least distance into the organization's egressive production of ideas, acts, or objects to recipients for an effect. "All contributions" are all types: executive and administrative, professional and scientific, technical and clerical, skilled or unskilled.

The *creation* of a true organization is an unending process in four phases: design, build, operate, and maintain. The phases are separated for thought; in practice they are concurrent and inter-dependent.

Postulates start and sustain a chain of logical deduction or intuitive reasoning; they permeate the results. Age, repetition, and prestige-utterance can implant generalizations in the mind with the fixity of a religious belief; then, generally in unawareness, they have the weight of postulates.

The postulated *leadership* uses five tools to make men perform. They are the whip, the carrot on a stick, the magnet (personal magnetism), the palliative, and the psycho-manipulator (to manipulate something which is supposed to "make men tick").

Elements of Demonstration—The proposition is demonstrated by showing that: 1) the postulate contains any inconsistency, or 2) the postulate has any

effect inconsistent with true organization.

Demonstration—It is an axiom that men who have a proprietary interest in their work, or who are self-employed, work to full capacity on their own initiative. This contradicts the postulate which uses "men" categorically.

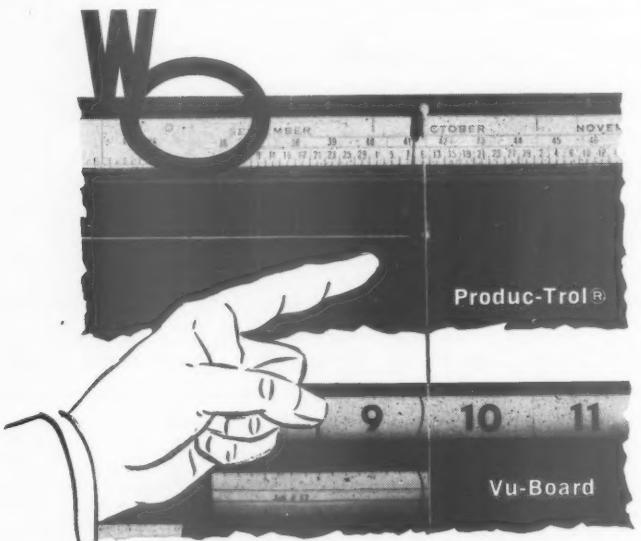
A postulated concept is *in* the words and actions emanating from it; these convey an attitude. The attitude permeates organizational atmosphere. Persons in the organization, often in unawareness, feel the attitude: "You are inherently only one-third effective." It is axiomatic that man does what is expected of him. The expected contribution (one-third) becomes his self-rated capacity. Applying the five tools of leadership must then make men *triple* their self-rated capacity. It is known that leadership can cause man to exceed himself only for short periods. In the long run, man's performance is close to his self-rated capacity. Thus the postulate wastes two-thirds of the capacity of the men in the organization.

However, a fortuitous measurement appeared in the after-action performance evaluation of some 400 Army rifle companies during World War II. The leaders, who expected that 100% of certain weapons had been fired in combat, took part in a systematic statistical verification. They were astonished, but had to admit that an average of only 15% were so fired. (*Man Against Fire*, Col. S. L. A. Marshall, William Morrow & Co., 1947, p. 53.) This 85% waste is greater inefficiency than we have just deduced from the postulate.

In all business organizations in the U.S., the difference between expectancy and results is shown by Department of Commerce statistics on complete failures: an average of one every nine minutes.

Conclusion—Therefore the postulate is erroneous as a starting assumption from which to create or sustain a true organization of collective human effort.

Rational postulates must contain two elements: 1) expectancy that men contribute to their *full* capacity on their own initiative; and 2) a concept of leadership that, primarily, *thinks through* the entire organization to give it a foundation—a stable, continuing system of organizational relations which orders and connects all expected, individual, human contributions so that each one is a unique 'contract,' gives each individual person a continuing proprietary interest in his contract, and then, through the system of relations, *facilitates* the execution.



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Newsletter

Armed Forces Management Association
Washington 25, D.C. Phone: OTis 4-7193

National President: Hon. George H. Roderick

Sixth Annual Conference

As we go to press, planning for the National Conference is proceeding at an accelerated pace. Sponsored by the active and vigorous membership of the Atlanta Chapters of the Association, and the Commanding General, Third U.S. Army, this conference promises to exceed 1959's highly successful meeting in its contribution to our national defense effort. Addressing the sessions will be distinguished guest speakers from the defense establishment, industry and education.

Pertinent information concerning the conference, the complete schedule for which appears on next page, follows:

Place: Atlanta Biltmore Hotel, Atlanta, Ga.

Dates: 19-21 April, 1960

Theme: "Management's Role in the Reduction of Lead Time." This provocative theme carries last year's theme a step forward into one of the most critical and important areas confronting our defense managers today. We feel the whole subject of the importance of time in general, and means by which we can conserve this most valuable commodity in particular will receive a thorough airing during the conference. To insure the widest approach to this important subject, our distinguished guest speakers have been asked to speak on a variety of subjects, embracing a wide spectrum of management areas and applications. A highly stimulating and most valuable meeting is thus assured.

In addition to our tried and true pattern proved over the years of sessions devoted to presentations by Defense, industry, education and Congress, certain innovations have been introduced in this year's meeting. This is our first national conference "away from home"—that is to say, Washington.

The decision to hold the conference in the field came about through numerous recommendations from the chapter membership, and a personal invitation of a senior area commander. We feel it will be a success, if the spirit and enthusiasm of the conference staff in Atlanta is any indication, it can't fail to be. If it is successful in achieving one of our most important AFMA objectives of making valuable contributions to better management in the defense establishment—and its counterpart in industry—future conferences from time to time in the field are certain. We might add that a number of chapters are already bidding for the honor of holding the National Conference in their local areas. Pending the outcome of the Atlanta experiment, locate for the 1961 meeting will probably be Detroit, with Chicago receiving the honors for the following year.

Other firsts for the Atlanta conference include a departure from the traditional month of May for the meeting, due to the fine spring weather which generally prevails in this beautiful Southern city, and a desire to avoid as much as possible the many conflicting dates in May. We hope this departure will result in fuller attendance than ever, and that many members will afford themselves of the opportunity to bring wives with them and possibly take some well earned leave amidst beautiful surroundings. There is much of interest for the ladies in the area, and special events are being arranged for the distaff friends of the Association.

Chapter workshops will be another innovation at the '60

Exec. Vice Pres.: VAdm. Harry E. Sears, USN, ret.

meeting. Running concurrently with the business session the morning of the first day, five groups will explore the same number of areas of chapter operations. Conducting the Workshop on chapter affairs will be the 1959 Outstanding Award winning Fort Benning Chapter.

Added improvements for the '60 conference include: Considerably increased exhibit space for the industry membership's displays of products and services, located adjacent to the conference hall for easy viewing by attendees during the conference breaks; a tour of a variety of industrial activities the afternoon of the last day of the conference; and other improvements to insure that the meeting is one of maximum interest, comfort and enjoyment to participants and attendees alike.

Applicable travel instructions for attendance at professional meetings, as promulgated by the various Services apply to this conference. These have been widely publicized in various service media and reference is invited thereto. Requests for travel should be made now; reservations likewise should be made at an early date on special forms which will be mailed to the membership soon.

Make your plans now and bring a friend or associate; members and non-members are both cordially invited.

Chapter Briefs

The winter program of the *National Capital Chapter* got under a full head of steam with a dinner meeting on 15 December at which RAdm. Adrian H. Perry, USN Ret., Chief of the Foreign Sales Division of Chance Vought Aircraft, Inc. made a most stimulating talk on "Opportunities Today in the European Market." Unique in this meeting was the fact that there were as many corporate member representatives as regular AFMA affiliates.

Continuing the various successful Financial Roundtable Meetings, which the chapter co-sponsors with ASPA, FGAA and SAM, the Washington group hosted a very productive meeting on 26 January in the GAO Auditorium. Subject—"Engineered Work Measurement, Can it work as effectively in Government as in Industry?" Principal speakers: Phillip Carroll, Professional Engineer, Past President of SAM; G. B. Bailey, Partner, Wood, Gordon & Company, Toronto, Canada. This was followed by an outstanding panel presentation moderated by John A. Beckett, Assistant Director, Bureau of the Budget, and composed of Capt. B. L. Lubelsky, USN, BuWeps; J. N. Lewis, Jr., Chief, OAD, Post Office Department; Lt. Col. E. T. Renicker, USA, Office Deputy Chief of Staff/Personnel; and Lynn Bryant, Director, Army Ord. Mgt. Eng. Training Agency, Rock Island, Ill. President of this chapter is Mr. Tom Kouzes.

Great Lakes-Chicago Chapter #32 held its eighth meeting 19 January at Fort Sheridan at a dinner gathering with a goodly attendance from military and civilian personnel from the Army, Navy, Air Force and Marine activities in the area. Principal address was by David B. Talty, Assistant Chief INC Division of the 7th U. S. Civil Service Region, who spoke on "The 77th Anniversary of The Civil Service Act."

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SCHEDULE OF NATIONAL CONFERENCE AFMA

19-21 April 1960 - Atlanta Biltmore Hotel

April 19th

8:00 a.m.—12:00 Noon Board of Directors Meeting. Chapter presidents and chapter members are welcome; Workshops on "Conducting Chapter Affairs," Ft. Benning Chapter monitoring.

12:00 Noon

Lunch

1:00

Welcome Address, C.G. 3rd Army
Keynote Address, Sec. Def. or designee

2:00—5:00 p.m.

General Session
Educational Program
Adm. Colclough, Pres. Geo. Wash. U.
Dr. Harrison, Pres. Ga. Tech
Colonel Culp, Cdt. Army Mgt. School
Maj. Gen. Combs, Cdt. USAFAT
VAdm. Goldthwaite, Ch, Naval Air Trg Comd

6:30

Reception—Biltmore Hotel

April 20th

8:00 a.m.—4:30 p.m.

Dr. York, OSD "Time Reduction in the Research and Engineering Process"
Sec. Brucker, Army "One Army Concept"
Sec. Franke, Navy "Reorganization of the Navy"
Sec. Sharp, Air Force "Importance of Time in Future Planning"

Maj. Gen. C. J. Hauck, OSD "Value of Congress/Defense Coordination in Reduction of Lead Time"
Lt. Gen. Collins, Army "The Human Factor in Time Saving"

RAdm. Stroop, Navy "The Navy's New Bureau of Weapons"

Lt. Gen. Schriever, AF "Reorganizing ARDC to Speed Up the Clock"

Maj. Gen. Betts, USA "ARPA's Role in Reducing Lead Time"

Maj. Gen. Allen, USMC "The Importance of Time in the Logistic Operation"

6:30 p.m.

National Awards Banquet
Fort McPherson Officers' Open Mess
Robert Gros, V.P. Pacific Gas & Electric Co.

April 21st

Industrial Program

Thos. A. Callaghan, Ford Motor Co.
Gen. Doolittle, Dir., Space Technology Lab, Thompson-Ramo-Wooldridge
Allen Mogensen, Pres., Work Simplification Conferences

John Beckett, Ass't Dir. of the Budget

Wm. F. Drake, Gallant, Inc.

W. J. McNeil, Pres., The Grace Line

Lunch

Industrial Tours for Conferees

Afternoon

List of Tours for AFMA Conferees

1. Georgia School of Technology (Rich's Computer Center), Atlanta, Ga.
2. Coca-Cola Plant, Atlanta, Georgia
3. Lockheed Aircraft Plant, Marietta, Georgia
4. Carling Brewery, Hapeville, Georgia
5. Cyclorama, Grant Park, Atlanta, Georgia
6. Atlanta General Depot, Forest Park, Georgia

Note: All times are firm; Speakers subject to confirmation.

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WHAT A BROKER CAN DO

Not long ago a stooped, middle-aged farmer walked into a Midwestern brokerage firm and took the lid off a battered, one-gallon milk pail. He counted softly to himself as he pulled old and new dollar bills out of the pail and spread them on the desk until, finally, he had extracted \$740.

"What happened to the rest of it?" he asked his wife. "What happened to the other \$230?"

The farmer's shock was plainly visible. He reached deep inside the pail and ran a hard, calloused hand around the bottom searching for the missing bills.

In heavy accents, his wife solved the mystery. "Oh, papa, I know where it is," she said, relieved and smiling. "We brought the wrong pail."

We won't argue that this whimsy involving a milk pail, or two of them, is typical of the new share owners who have become stock investors for the first time in the past few years. But we will say that the farmer and his wife illustrate the sort of middle-income individuals who more and more are becoming the owners of American business.

Yet in the midst of the exciting rise in stock ownership, there is one bleak note. Not everyone is investing wisely or well. Far too many people have fallen prey to the frauds who peddle nothing more than day dreams—at so much a share.

At a time when literally millions of Americans are interested in participating directly in capitalism's yield through stock ownership, these artful and unscrupulous promoters sell stock worth little more than the paper on which they're printed. From back-alley offices furnished largely with telephones, they fleece the public by glibly promising great profits that will never be realized. Never? Well, hardly ever.

Unfortunately, their persuasive sales patter is all too successful. And while the business of fraudulent stock promotion has decreased somewhat within the past few months, it still amounts to a hazard. Even now, gullible investors are being duped by these same hollow old promises.

In blunt terms of numbers, only a relative handful of brazen salesmen happen to be involved. While they try to mulct the public by telephone, the vast majority of honest and reputable brokers, such as member firms of the Stock Exchange, candidly and objectively review investment possibilities with their customers. More than anything else, of course, reputable brokers want to satisfy their customers.

But the fast-talking promoters are a different breed. At best, they offer highly speculative stocks which they represent as future blue chips or better. At worst, the stocks they market offer no possible return on the investment for the simple reason that the companies are non-operating.

No matter where these promoters operate, their sales techniques fit a pattern. In friendly, confidential tones, they telephone people whose names they find on bulk lists of individuals interested in the stock market. They offer stock issues at low prices, buttress their conversation by talking in terms of doubling and tripling the investment and refer to classified information and top-secret assay reports.

To raise warning flags for the public, the New York Stock Exchange has publicized certain cautions for a number of years. We know of no other industry that utters such warnings for prospective customers as we do, when we urge them to get the facts, seek sound advice, set aside an emergency fund, understand the risks and assume only those risks that they can afford.

In other words, your best opportunity for investing money wisely and well is with the help of a reputable broker. He won't promise to double your investment overnight and he won't guarantee riches beyond measure. But, even so, he's far and away the best guide along the road to a safe financial tomorrow for you and your family.

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The Paradox . . .

(Continued from page 21)

points, but each should be considered.

(1) Begin at the top of the priority list and invest all available funds in the first item. If there is money left over, buy the second item, and repeat the process until the money runs out. This all-eggs-in-one basket technique would simplify procurement and allow fastest possible phase-in of the highest priority item. But it would deny Army other urgently needed equipment. Agreement on which item has such over-riding importance would be almost impossible to obtain.

(2) Reduce funds for R&D and use the money thus made available to buy more hardware. This would speed the change to new equipment ready for production. The long range effects might be disastrous.

(3) Buy limited quantities of each item on the priority list and modernize small units, one at a time, as funds become available. This is acceptable for some items but for complete systems, like the AN/VRC-12 radios cited earlier or an air traffic control system, a field Army would be the smallest echelon at which it could be applied.

(4) Delay modernization and allocate a substantial part of the funds from reduced procurement to greater long range research effort. This might make it easier to keep up with the Soviet's expanded research and scientific program, but it would certainly jeopardize the Army's ability to fight a limited war in the mid-range period and leave Army units equipped with old, out-moded equipment. This approach is not suggested but is worth consideration.

(5) Develop selected items to pilot run production stage, check out quality control and adequacy of contractor tool equipment and assembly techniques, and then maintain the tool equipment as an industrial preparedness measure. If modern capabilities exist, the present system has greater potential for reacting to full mobilization. If necessary to crash develop (as in WW II) there is a serious question whether R&D product engineering and first time procurement would work.

The approach ultimately selected will inevitably be a compromise. This compromise should never force reduction in the Army's present research and development. This country will be able to defeat a potential enemy in the future only by qualitative superiority. Qualitative superiority and a comprehensive and effective R&D program are synonymous.

The Army must not restrict its research to items for which user requirements are set. Some of our finest advances have come in a free atmosphere of thought relating to military application but not directed to a set requirement.

Scientists must continue to pioneer new ideas which suggest potentially improved combat effectiveness. Only then is Army's R&D team properly responsive. And only then can we assure Army's combat structure will be vitalized with new capabilities over a broad front.

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FOR "SCIENTIFIC KNOWLEDGE AND ABLE LEADERSHIP"

On October 5, 1959, the Army's Distinguished Civilian Service Award was presented to Dr. James W. McRae, Vice President of the American Telephone and Telegraph Company.

The award was given for his aid in directing the creation of a family of small, tactical nuclear weapons while he was president of Sandia Corporation—a non-profit Western Electric subsidiary under contract to the Atomic Energy Commission.

Dr. McRae is presently A.T.&T.'s co-ordinator of defense activities.

The citation was read by Lt. Gen. Arthur G. Trudeau, Chief of Army Research and Development, and said in part: "His scientific knowledge and able leadership have contributed materially to the development for the Army of small, tactical nuclear weapons, thereby significantly increasing the Army's capability to carry out its combat mission."

Bell System people everywhere are proud of Dr. McRae's recognition. And they are proud, also, that the skills and experience they apply in telephone work are also useful in the nation's defense.

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- ★ **What's next on the agenda?**



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★ The GOER consists of a diesel-powered two-wheel prime-mover, to which a variety of interchangeable trailing units having rear-wheel power (4x4) may be attached. Shown here is the prototype of a 5000 gallon fuel unit. The GOER concept is a development of the LeTourneau-Westinghouse line of earthmoving equipment.